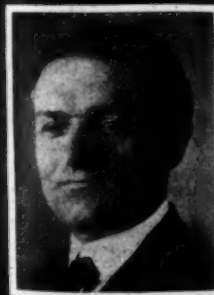


THE AUTOMOBILE

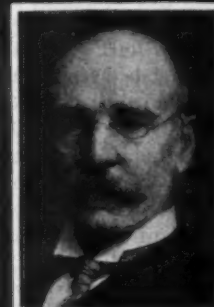


CHICAGO, FEB. 4.—And now comes the real national automobile show of the country—that of the National Association of Automobile Manufacturers, held in the Coliseum and First Regiment Armory. Of course, S. A. Miles is the general manager of the show, the committee for which also includes A. L. Pope, chairman; Windsor T. White, Thomas Henderson, C. C. Hildebrand and W. E. Metzger—all pioneers of an unparalleled industry.

This national display—and Chicagoans are proud in their claim that it is the only event of its kind that is truly national—will eclipse its predecessors in number of exhibitors, variety of displays, and lavishness of decorative and lighting effects. Indications are that every record for attendance will be shattered, and ample preparations have been made for caring for the thousands, not only from Chicago but from all parts of the West, who will throng the two capacious buildings, which will be filled to the bursting point.

Given under N. A. A. M. auspices, every interest has worked in harmony for the success of the show. Every detail has received the careful attention of some member of the committee having such matters in charge. Everywhere has been in evidence the spirit of the West, the steady pulling together to achieve a common result, the swift mastering of details and rapid rounding of them into perfected form, the obliteration of discords and jealousies, and the placing of every exhibitor on an equal footing.

Scenes typical of the West, too, will be in evidence during the progress of the national show. Particularly marked, along this line, will be the opening of the doors of the show at 8 o'clock each morning to accommodate dealers from the West who prefer going direct to the show from the train and immediately begin business.



Another characteristically Western feature will be the presence of the farmers, coming from long distances and putting an end to the common error that the farmer is the implacable enemy of the motor-driven vehicle. The prosperity of the West is of all classes, and the farmer each year is taking up motor vehicles in increasing numbers.

All that has been accomplished here has been done in less than a decade, for the first Chicago show goes back only to 1900. The association now known as the National Association of Automobile Manufacturers, Inc., came into existence about ten years ago, in New York. Five years later came the trade dispute and the organization of both the Association of Licensed Automobile Manufacturers and of the American Motor Car Manufacturers Association, thus dividing the old association membership. Following this breach, really a trade quarrel, came the two New York shows, the Licensed association securing the Madison Square Garden, and the other organization taking up the Grand Central Palace show.

While New York has had her two shows annually, and because of the rivalry neither can fully claim really national characteristics, Chicago has remained neutral, knowing neither the "licensed" nor "unlicensed" maker, and inviting each to meet on common ground in the Coliseum and Armory, select exhibit space by lot, and stand in all respects equal. In this way Chicago holds for her show the features that make it truly national, and the marvellous growth since that first show in the Windy City testifies most eloquently to how public and manufacturers alike look upon it.

The first show in Chicago, in 1900, was promoted without reference to any association. The automobile manufacturers were few, exhibits consequently difficult to secure, yet, despite all obstacles, the show was held. From the standpoint of the managers it was not a financial success, but the exhibitors found in it something that proved almost a gold mine. Enthusiasm was aroused among agents, prospective buyers, and the public at large, and before the show closed its doors every exhibitor had applied for space in the show that was to be given the ensuing year.

The next year found the available space increased by using the Coliseum annex. In earlier days it had been considered essential that the cars be seen in motion, and to meet this demand a track eighteen feet wide encircled the building. The second year found the track, owing to the demands for space coupled with the opinions of the manufacturers that it was not necessary, abandoned for all time and in its place two great machines had been erected on which cars might be driven at highest speed while a dial indicated the distance traveled.

It was during this show, too, that the National Association of Automobile Manufacturers, Inc., first appeared and every show since that time has been given under the auspices of that organization. This second show, considering the condition of the automobile industry at that time, has never been excelled. It demonstrated the absolute need of a Western exhibit, regardless of what shows New York might offer, and since that time the history of the Chicago automobile show is the record of steady, well-founded growth.

For the third show the Coliseum annex was added and the second floor of the annex had to be pressed into service for the fourth show. When the fifth was given, in order to accommodate exhibitors it became necessary to not only add the First Regiment Armory but to floor over the seating space in the Coliseum gallery as well, and even then the demand could not be fully met.

The sixth show managed with the same quarters, but the seventh found added the basement of the Coliseum annex and the Seventh Regiment Armory for commercial vehicles. This gave a combined floor space of 150,000 square feet.

This year's show finds 323 exhibitors placed, and about one hundred of them are showing an average of three automobiles each. A feature of particular interest promises to be the motor-cycle display, twenty-one makers having secured space.

In decorations the 1909 show will eclipse its predecessors,

lavish as they have been. The success of the papier-mâché work last year justified its use this year again, supplemented by staff. The 1909 show will be a show of bronze, or copper, or old gold, to suit the pleasure of the visitor.

Down the center of each of four groups of equal size will run a column of massive pillars, supporting representations of bronze statuary, each designed and made for the occasion and bearing the imprint of automobiling, sport, utility, and commerce combined. The principal feature in each group will be a massive wheel, six feet in diameter, placed at a height of fifteen feet, and below it a man of heroic size in the act of giving it impetus.

The electric lighting will be brilliant. Sixty-four flaming arcs are to be used in addition to the usual lighting equipment and smaller decorative effects, such as 250 twelve-inch globes and a greater number of incandescent lights.

It is not generally known perhaps that the Coliseum is the largest structure devoted to amusements and public gatherings in the United States, largely exceeding the size of Madison Square Garden, and with its galleries and annex affording about 10,000 more square feet of exhibition space.

Among the meetings to be held during the show, in addition to that of the National Association of Automobile Manufacturers, which will meet to elect officers, and of the American Automobile Association, are those of the National Retail Automobile Dealers' Association, and the National Association of Chauffeurs.

SOME GOSSIP OF THE SHOW.

Chadwick's Independent Show.—In view of the great prominence which the Chadwick Great Six stock car has won for itself in every event in which it has been entered during the past year, not a few of the visitors to the Coliseum will be disappointed at being unable to find the exhibit of the Chadwick Engineering Works there. The makers explain their absence as being due to the fact that they were unable to secure what they considered proper exhibition space and accordingly decided to confine their exhibit to the Chicago salesrooms at 1218 Michigan avenue, where H. B. Larzelere, sales-manager of the company, will be in charge throughout the week, assisted by the Chadwick Chicago representative.

Annual Gathering of the Pioneers.—One of the social functions of the show will be the third annual gathering of the Auto-Cyclo Pioneers, those who were connected with the predecessor of the automobile and have a connection with the succeeding industry. Present plans include a beefsteak supper on Wednesday night at the Southern Hotel, immediately after the closing of the show. The affair is in charge of a committee of "old timers," the secretary of which is George G. Greenburg, whose Chicago address is 1380 West Jackson boulevard. Of course, there will be something to eat, some music, and some talk about the days that are gone; in fact, nothing at all elaborate is planned, but simply a get-together of those who progressed from one industry into its natural successor.

White Books of White Matches.—Unconsciously, or rather unintentionally, The White Company may become a quasi-offender against the universal rule of "No smoking" that now prevails at all automobile shows, by supplying handy books of white-headed matches to all comers. A match is an incentive to light a cigar, particularly where this essential has been lacking hitherto, but this will not prevent the distribution of thousands of these neat little books during the course of the show at the Coliseum, and many a smoker will carry a White souvenir around with him for the next week or so. The advertising embodied in the souvenir is brief and directly to the point, reading on the flap: "The White Steamer is the only make of car which has been favorably reported on by the United States Government. The White Steamer is the only American touring car sold in quantity in England, France, Germany, and Italy in competition with the home product." It will carry its message home to thousands before the rows of White matches have all served their purpose and gone the way of their predecessors.



CHICAGO'S LIST OF EXHIBITORS

AMERICAN GASOLINE PLEASURE CARS.

AMERICAN SIMPLEX: Simplex Co., Mishawaka, Ind.	C.M.F. N-1
APPERSON: Apperson Bros. Auto Co., Kokomo, Ind.	C.M.F. E-1
APPERSON-TOLEDO: A.-T. Motor Car Toledo, O.	C.M.F. E-4
ALCO: American Locomobile Co., New York City	C.M.F. F-1
AUBURN: Auburn Auto Co., Auburn, Ind.	A.M.F. D-4
ATLAS: Atlas Motor Car Co., Springfield, Mass.	A.M.F. B-3
AUSTIN: Austin Auto Co., Grand Rapids, Mich.	C.M.F. O-2
BUICK: Buick Motor Co., Flint, Mich.	C.M.F. E-2
BRUSH: Brush Runabout Co., Detroit	A.M.F. H-1
CADILLAC: Cadillac Motor Car Co., Detroit	C.M.F. D-3
CAMERON: Cameron Car Co., Beverly, Mass.	C.B. 58
CHALMERS-DETROIT: C.-D. Motor Co., Detroit	C.M.F. M-1
CORBIN: Corbin Motor Veh. Corp., New Britain, Conn.	C.M.F. F-4
CARTERCAR: Cartercar Company, Pontiac, Mich.	A.M.F. C-2
DE LUXE: De Luxe Motor Car Co., Detroit	C.M.F. J-1
DORRIS: Dorris Motor Car Co., St. Louis	A.M.F. B-4
ELMORE: Elmore Mfg. Co., Clyde, O.	C.M.F. A-6
E-M-F: Everitt-Metzger-Flanders Co., Detroit	C.M.F. C
EMANCIPATOR: Emancipator Auto Co., Chicago	C.S. 11-15
FRANKLIN: H. H. Franklin Mfg. Co., Syracuse, N. Y.	C.M.F. D-6
FIRESTONE: Columbus Buggy Co., Columbus, O.	A.M.F. B-1
GAETH: Gaeth Automobile Co., Cleveland	A.M.F. G-3
GLIDE: Bartholomew Company, Peoria, Ill.	C.M.F. H-1
GREAT WESTERN: Model Auto Co., Peru, Ind.	A.M.F. F-2
HAYNES: Haynes Automobile Co., Kokomo, Ind.	C.M.F. C-6
HALLIDAY: Streater Motor Car Co., Streater, Ill.	A.M.F. E-6
INTER-STATE: Inter-State Auto Co., Muncie, Ind.	C.B. 25-30
JACKSON: Jackson Automobile Co., Jackson, Mich.	A.M.F. A-4
KNOX: Knox Automobile Co., Springfield, Mass.	C.M.F. G-2
KISSELCAR: Kissel Motor Car Co., Hartford, Wis.	A.M.F. A-1
LAMBERT: Buckeye Mfg. Co., Anderson, Ind.	A.M.F. A-3
LOCOMOBILE: Loco. Co. of Am., Bridgeport, Conn.	C.M.F. D-5
LOZIER: Lozier Motor Co., New York City	C.M.F. H-2
MARMON: Nordyke & Marmon Co., Indianapolis	A.M.F. D-2
MATHESON: Matheson Motor Car Co., Wilkes-Barre, Pa.	C.M.F. G-1
MAXWELL: Maxwell-Briscoe Motor Co., Tarrytown	C.M.F. D-4
MIDLAND: Midland Motor Co., Moline, Ill.	C.M.F. Q-2
MITCHELL: Mitchell Motor Car Co., Racine, Wis.	C.M.F. K-1
METEOR: Meteor Motor Car Co., Bettendorf, Ia.	A.M.F. E-5
MOLINE: Moline Auto Co., East Moline, Ill.	A.M.F. D-3
MOON: Moon Motor Car Co., St. Louis	A.M.F. B-2
MORA: Mora Motor Car Co., Newark, N. Y.	A.M.F. D-1
NATIONAL: National Motor Veh. Co., Indianapolis	C.M.F. C-5
OVERLAND: Overland Automobile Co., Indianapolis	A.M.F. C-1
OAKLAND: Oakland Motor Car Co., Pontiac	C.M.F. P-1
OLDSMOBILE: Olds Motor Works, Lansing, Mich.	C.M.F. F-3
OWEN THOMAS: Thomas Motor Co., Janesville, Wis.	C.B. 35
PACKARD: Packard Motor Car Co., Detroit	C.M.F. C-1
PEERLESS: Peerless Motor Car Co., Cleveland	C.M.F. A-5
PENNSYLVANIA: Penn. Auto-Motor Co., Bryn Mawr, Pa.	C.M.F. Q-1
PIERCE-ARROW: Pierce-Arrow Motor Car Co., Buffalo	C.M.F. F-2
PITTSBURG-SIX: Ft. Pitt Mfg. Co., New Kensington, Pa.	A.M.F. G-1
POPE-HARTFORD: Pope Mfg. Co., Hartford, Conn.	C.M.F. A-2
PREMIER: Premier Motor Mfg. Co., Indianapolis	C.M.F. C-3

PULLMAN: York Motor Car Co., York, Pa.	C.M.F. O-1
REO: Reo Motor Car Co., Lansing, Mich.	C.M.F. B-6
RICKETTS: Ricketts Auto Works, South Bend, Ind.	C.M.F. L-1
RAMBLER: Thos. B. Jeffery & Co., Kenosha, Wis.	C.M.F. B-2
RIDER-LEWIS: Rider-Lewis Motor Car Co., Muncie, Ind.	C.B. 21-24
RICHMOND: Wayne Works, Richmond, Ind.	A.M.F. G-2
STEARNS: F. B. Stearns Co., Cleveland	C.M.F. B-5
STEVENS-DURYEA: S.-D. Co., Chicopee Falls, Mass.	C.M.F. A-4
SPEEDWELL: Speedwell Motor Car Co., Dayton, O.	A.M.F. A-2
STUDEBAKER: Studebaker Auto Co., South Bend, Ind.	C.M.F. C-4
STODDARD-DAYTON: Dayton Motor Car Co., Dayton, O.	C.M.F. D-2
THOMAS: E. R. Thomas Motor Co., Buffalo	C.M.F. A-3 & C.B. 33
WELCH: Welch Motor Car Co., Pontiac, Mich.	C.M.F. Q-3
WINTON: Winton Motor Carriage Co., Cleveland	C.M.F. A-1

STEAMER PLEASURE CARS.

WHITE: The White Co., Cleveland	C.M.F. D-1
---------------------------------	------------

ELECTRIC PLEASURE CARS.

BABCOCK: Babcock Electric Co., Buffalo, N. Y.	C.M.F. B-3
BAKER: Baker Motor Vehicle Co., Cleveland	C.M.F. B-4
DETROIT: Anderson Carriage Co., Detroit, Mich.	A.M.F. F-1
STUDEBAKER: Studebaker Auto Co., So. Bend, Ind.	C.M.F. C-4
RAUCH & LANG: Rauch & Lang Car Co., Cleveland	A.M.F. G-5
WAVERLY: Waverly Company, Indianapolis	A.M.F. C-3
WOODS: Woods Motor Vehicle Co., Chicago	C.M.F. B-1

HIGH WHEEL PLEASURE CARS.

ANDERSON: Anderson Carriage Mfg. Co., Anderson, Ind.	A.M.F. E-1
BLACK: Black Mfg. Co., Chicago	A.M.F. E-4
BENDIX: Bendix Company, Chicago	C.B. 31-32
DUER: Chicago Coach & Carriage Co., Chicago	A.M.F. E-1
HOLSMAN: Holman Automobile Co., Chicago	C.M.F. E-3
HATFIELD: Clark-Hatfield Auto Co., Oshkosh, Wis.	C.B. 51
KIBLINGER: W. H. McIntyre Co., Auburn, Ind.	A.M.F. C-4
MIER: Mier Carriage & Buggy Co., Ligonier, Ind.	C.B. 57
SCHACHT: Schacht Mfg. Co., Cincinnati, O.	C.B. 12
STAYER: Stayer Carriage Co., Chicago	A.M.F. EE
ZIMMERMAN: Zimmerman Mfg. Co., Auburn, Ind.	C.B. 1

FOREIGN PLEASURE CARS.

BERLIET: Berliet Import Co., Chicago	A.M.F. G-4
FIAT: Fiat Automobile Co., New York City	A.M.F. G-1

COMMERCIAL VEHICLES.

GRABOWSKY: Grabowsky Power Wagon Co., Detroit	C.B. 38-40
RANDOLPH: Randolph Motor Car Co., Chicago	C.B. 17-20
RAPID: Rapid Motor Vehicle Co., Pontiac, Mich.	A.M.F. E-2

TIRES.

Ajax-Grieb Rubber Co., Trenton, N. J.	C.A.S. 85
Continental Caoutchouc Co., New York City	C.A.S. 104 & 121
Consolidated Rubber Tire Co., New York City	C.A.S.
Diamond Rubber Co., Akron, O.	C.G. 34
Dayton Rubber Mfg. Co., Dayton, O.	A.G. 25
Ennis Rubber Mfg. Co., Newark, N. J.	A.G. B-28
Empire Auto Tire Co., Trenton, N. J.	C.A.S. 142
Fox Metallic Tire Belt Co., New York City	C.A.S. 116
Firestone Tire & Rubber Co., Akron, O.	C.G. 67
Flisk Rubber Co., Chicopee Falls, Mass.	C.G. 38
G & J Tire Co., Indianapolis, Ind.	C.G. 44
B. F. Goodrich Co., Akron, O.	C.G. 47
Goodyear Tire & Rubber Co., Akron, O.	C.G. 51
Hartford Rubber Works Co., Hartford Conn.	C.G. 30
Morgan & Wright, Detroit, Mich.	C.G. 26
Motz Clincher Tire & Rubber Co., Akron, O.	C.A.S. 108
Michelin Tire Co., Milltown, N. J.	C.A.S. 112
Pennsylvania Rubber Co., Jeanette, Pa.	C.G. 62
Republic Rubber Co., Youngstown, O.	C.G. 12
Swinehart Tire & Rubber Co., Akron, O.	C.G. 54
Ziegler Bullet Proof Cloth Co., Chicago	C.B. 2

TIRE ACCESSORIES.

E. T. Burrows Co., Portland, Me.	C.B. 49
Leather Tire Goods Co., Newton Upper Falls, Mass.	C.A.S. 105
Nadall Mfg. Co., Chicago	C.B. 56
J. H. Sager Co., Rochester, N. Y.	C.A.S. 84
C. A. Shaler Co., Waupun, Wis.	G.G. 9
Standard Tire Protector Co., Saginaw, Mich.	A.G. B-25
Universal Tire Protector Co., Angola, Ind.	A.G. 36
Weed Chain Tire Grip Co., New York City	C.G. 77

BATTERIES.

Chicago Battery Co., Chicago	C.G. 33
Commercial Electric Battery Co., Chicago	C.G. 10
Electric Storage Battery Co., Philadelphia	A.G. 61
National Carbon Co., Cleveland	C.G. 46
National Battery Co., Buffalo, N. Y.	C.A.S. 110
Vesta Accumulator Co., Chicago	C.G. 22
Vivax Storage Battery Co., Chicago	A.G. 9
Wetherbee Igniter Co., New York City	C.A.S. 107

PLUGS, SWITCHES, AND GENERAL IGNITION.

American Electric Novelty & Mfg. Co., New York City	C.G. 15
Champion Ignition Company, Flint, Mich.	C.B. 48
High Frequency Ignition Co., Chicago	A.G. 31
R. E. Hardy Co., New York City	C.G. 56
Legnard Bros. (Inc.), Waukegan, Ill.	A.G. 15
A. R. Mosler & Co., New York City	C.A.S. 82
Never-Miss Spark Plug Co., Lansing, Mich.	C.G. 70
Pransstiehl Elec. Lab., North Chicago	C.B. 5
Pittsfield Spark Coll Co., Dalton, Mass.	C.A.S. 119

MAGNETOS AND TIMERS.

Atwater-Kent Mfg. Co., Philadelphia	C.G. 17
Boach Magneto Co., Chicago	C.B. 53
Heinze Electric Co., Lowell, Mass.	C.G. 63
Motoring Device Mfg. Co., Pendleton, Ind.	C.G. 24
Monitor Mfg. Co., Boston	A.G. 20
C. F. Spiltdorf, New York City	C.G. 49
F. H. Wheeler, Indianapolis	C.G. 20
Wetherbee Igniter Co., New York City	C.A.S. 107

Abbreviations for Location of Exhibitors.—C.M.F.—Coliseum, main floor. C.B.—Coliseum, basement. C.G.—Coliseum, gallery. C.A.S.—Coliseum Annex, second floor. A.M.F.—First Regiment Armory, main floor. A.G.—First Regiment Armory, gallery.

COILS.

Atwater-Kent Mfg. Co., Philadelphia.....	C.G.	17
Conn. Tel. & Elec. Co., Meriden, Conn.....	C.A.S.	106
Heinze Electric Co., Lowell, Mass.....	C.G.	63
Kokomo Electric Co., Kokomo, Ind.....	C.G.	75
National Coil Co., Lansing, Mich.....	C.A.S.	88
Pittsfield Spark Coil Co., Dalton, Mass.....	C.A.S.	119
Remy Electric Co., Anderson, Ind.....	C.G.	65
C. F. Splittorf, New York City.....	C.G.	49

LAMPS.

Badger Brass Mfg. Co., Kenosha, Wis.....	C.G.	40
R. E. Deitz & Co., New York City.....	C.G.	28
Edmunds & Jones Mfg. Co., Detroit.....	C.G.	74
Gray & Davis, Amesbury, Mass.....	C.G.	42
Ham Mfg. Co., Rochester, N. Y.....	C.A.S.	81

SHOCK ABSORBERS AND SPRINGS.

Ernst Flentje, Cambridge, Mass.....	C.B.	8
Gabriel Horn Mfg. Co., Cleveland.....	C.G.	50
Hartford Suspension Co., Jersey City.....	C.G.	8
J. H. Sager Company, Rochester, N. Y.....	C.A.S.	84
Triple Action Spring Co., Chicago.....	C.B.	6

SPEEDOMETERS.

Auto Improvement Co., New York City.....	C.G.	14
Chicago Reometre Co., Chicago.....	C.B.	4
Hoffecker, C., Boston.....	C.A.S.	115
J. W. Jones, New York City.....	C.G.	55
Stewart & Clark Mfg. Co., Chicago.....	C.A.S.	80
Veeder Mfg. Co., Hartford, Conn.....	C.G.	42
Warner Instrument Co., Beloit, Wis.....	C.G.	18

RADIATORS, PUMPS, MUFFLERS, AND HORNS.

Gabriel Horn Mfg. Co., Cleveland.....	C.G.	50
Grey-Hawley Mfg. Co., Detroit.....	C.A.S.	83
Imperial Brass Mfg. Co., Chicago.....	C.G.	7
Long Mfg. Co., Chicago.....	C.G.	53
McCord Mfg. Co., Detroit.....	C.G.	32
Randall-Faichney Co., Boston.....	C.A.S.	117

AXLES AND BEARINGS.

Bower Roller Bearing Co., Dayton, O.....	C.A.S.	148
High Wheel Auto Parts Co., Muncie, Ind.....	C.B.	47
Timken Roller Bearing Axle Co., Canton, O.....	C.G.	29

LUBRICANT AND LUBRICATORS.

Adam Cook Sons, New York City.....	C.A.S.	88
Dixon Crucible Co., Jersey City.....	C.A.S.	87
Hancock Mfg. Co., Charlotte, Mich.....	C.G.	16
A. W. Harris Oil Co., Providence, R. I.....	C.G.	25
McCanna Mfg. Co., Chicago.....	A.G.	19
N. Y. & N. J. Lubricant Co., New York City.....	C.G.	19

MATERIALS.

Wm. Cramp & Sons, Philadelphia.....	C.G.	59
Globe Machine & Stamping Co., Cleveland.....	C.A.S.	114
Shelby Steel Tube Co., Pittsburg.....	C.G.	60
A. O. Smith Co., Milwaukee.....	C.G.	6
Spicer Universal Joint Mfg. Co., Plainfield, N. J.....	C.G.	37
Whiteley Steel Co., Muncie, Ind.....	C.A.S.	109

CARBURETERS AND GASOLINE TANKS.

Avery Portable Lighting Co., Milwaukee.....	C.A.S.	118
Byrne-Kingston Co., Kokomo, Ind.....	C.G.	76
S. F. Bowser & Co., Fort Wayne, Ind.....	C.G.	72
Stromberg Motor Devices Co., Chicago.....	A.G.	16
F. H. Wheeler, Indianapolis.....	C.G.	20

ENGINES, TRANSMISSIONS, AND STEERING.

Brown-Lipe Gear Co., Syracuse.....	C.G.	36
Gemmer Mfg. Co., Detroit.....	C.A.S.	145
High Wheel Auto Parts Co., Muncie, Ind.....	C.B.	47
Milwaukee Motor Co., Milwaukee.....	C.A.S.	147
Ross Gear & Tool Co., Lafayette, Ind.....	C.A.S.	88
Warner Gear Co., Muncie, Ind.....	C.G.	57

SHIELDS, TOPS, AND BODY MOUNTINGS.

Chicago Wind Shield Co., Chicago.....	C.B.	43
L. C. Chase Co., Boston.....	C.A.S.	111
C. P. Kimball & Co., Chicago.....	A.M.F.	G-6
Fellock Auto & Mfg. Co., Evansville, Ind.....	C.B.	42
Limousine Carriage Mfg. Co., Chicago.....	C.A.S.	120
Longdin-Brugger Co., Fond du Lac, Wis.....	C.B.	46
Pantasote Company, New York City.....	C.G.	78
Rands Mfg. Co., Detroit.....	C.G.	10
Sprague Umbrella Co., Norwalk, O.....	C.G.	2-4
20th Century Motor Car Co., South Bend, Ind.....	C.B.	44
Troy Carriage Sunshade Co., Troy, O.....	C.B.	41
Vanguard Mfg. Co., Joliet, Ill.....	C.B.	50
Vehicle Top & Supply Co., St. Louis.....	C.B.	45

WHEELS AND CHAINS.

Baldwin Chain & Mfg. Co., Worcester, Mass.....	C.G.	64
Diamond Chain & Mfg. Co., Indianapolis.....	C.G.	58
Whitney Mfg. Co., Hartford, Conn.....	C.G.	23

WRENCHES AND OTHER TOOLS.

Buda Foundry & Mfg. Co., Chicago.....	C.B.	55
Cooks Standard Tool Co., Kalamazoo.....	C.G.	5
Duff Mfg. Co., Pittsburg.....	C.G.	66
Elite Mfg. Co., Ashland, O.....	A.G.	34
Norton Co., Worcester, Mass.....	C.B.	3
Oliver Mfg. Co., Chicago.....	C.G.	71
Quincy, Manchester, Sargent Co., Plainfield, N. J.....	A.G.	B-27

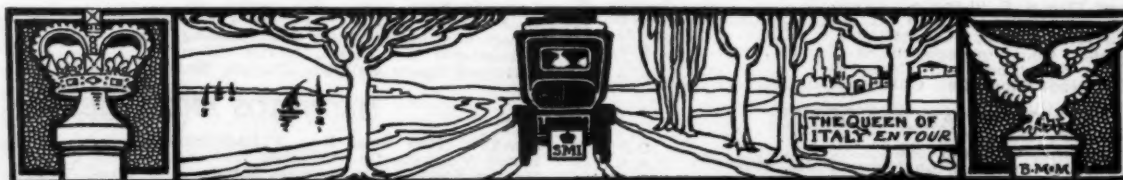
IN GENERAL.

"The Automobile," New York City.....	A.G.	A-24
Eugene Arnstein, Chicago.....	A.G.	21
Austro-Am. Separator Co., Cleveland.....	A.G.	3
"Automobile Topics," New York City.....	A.G.	11
S. Breakstone, Chicago.....	A.G.	13
Brandenburg & Co., Chicago.....	C.A.S.	146
Central Rubber Co., Chicago.....	A.G.	8
"Cycle & Automobile Trade Journal," Philadelphia.....	A.G.	6
Excelsior Supply Co., Chicago.....	A.G.	25
Fulton & Zinke, Chicago.....	C.B.	9
Garage Equipment Co., Milwaukee.....	C.B.	7
"Horseless Age," New York City.....	A.G.	17
H. C. Knight & Co., Chicago.....	A.G.	32
London Auto Supply Co., Chicago.....	A.G.	1
Morrison-Ricker Mfg. Co., Grinnell, Ia.....	A.G.	12
"Motor," New York City.....	A.G.	A-28
Motor & Accessories Mfgs.....	C.G.	69
"Motor," New York City.....	A.G.	A-28
Neely & Co., Chicago.....	A.G.	4
Wm. Pratt Mfg. Co., Chicago.....	C.G.	1
Rochester Safety Lock Co., Rochester, N. Y.....	A.G.	7
T. J. Rockford & Co., Chicago.....	A.G.	33
Royal Equipment Co., Bridgeport, Conn.....	C.B.	52
F. W. Smith, Aberdeen, S. D.....	A.G.	29
F. E. Sparks, Chicago.....	C.B.	37
Standard Varnish Works, Chicago.....	A.G.	18
Valentine & Co., New York City.....	C.G.	11

MOTORCYCLE DEPARTMENT.

Coliseum Annex—Second Floor.

American Motor Co., Brockton, Mass.....	C.A.S.	138
Armack Motor Co., Chicago.....	C.A.S.	97
Aurora Automatic Mach. Co., Aurora, Ill.....	C.A.S.	134
Auto-Bi Company, Buffalo, N. Y.....	C.A.S.	137
"Bicycling World," New York City.....	C.A.S.	101
Consolidated Mfg. Co., Toledo.....	C.A.S.	131
Excelsior Motor & Mfg. Co., Chicago.....	C.A.S.	128
Harley-Davidson Motor Co., Chicago.....	C.A.S.	127
Hendee Mfg. Co., Springfield, Mass.....	C.A.S.	122-125
Hornecker Motor Mfg. Co., Geneseo, Ill.....	C.A.S.	95
Magnet Motor Co., Chicago.....	C.A.S.	102
Merkel Light Motor Co., Pottstown, Pa.....	C.A.S.	91
Minneapolis Motor Cycle Co., Minneapolis, Minn.....	C.A.S.	89
"Motorcycle," Illustrated, New York City.....	C.A.S.	103
N. S. U. Motor Co., New York City.....	C.A.S.	140
New Era Gas Engine Co., Dayton, O.....	C.A.S.	98
Ovington Motor Co., New York City.....	C.A.S.	132
Pierce Cycle Co., Buffalo, N. Y.....	C.A.S.	90
Reading Standard Co., Reading, Pa.....	C.A.S.	94
Thiem Mfg. Co., Minneapolis, Minn.....	C.A.S.	136
Wagner Motor Cycle Co., St. Paul, Minn.....	C.A.S.	130



ESSENTIAL DETAILS OF THE 1909 CAR LIST

FIRST came the Grand Central Palace Show of the American Motor Car Manufacturers' Association and the Importers' Automobile Salon. Next followed the Madison Square Garden Show of the Association of Licensed Automobile Manufacturers. Now comes the Chicago exhibition of the National Association of Automobile Manufacturers.

In this show the two New York affairs are practically rolled

into one. Since the participants in the three shows compose the flower of the American automobile industry, a tabular summary will prove both interesting and instructive and convenient to the man who is about to buy a new car and perforce desires to regulate his purchase by consideration of the dollar mark.

Therefore, herewith is presented the roll call of, with few exceptions, all the cars on sale at the present time:

AMERICAN GASOLINE PLEASURE CARS.

CARS AND MODEL	Maker	Price	H. P.	Type
Peerless 25	Peerless Motor Car Co.	\$7,300	57	Landaulet
Pierce-Arrow 60	Pierce-Arrow Motor Car Co.	\$7,200	60	Landau
Peerless 25	Peerless Motor Car Co.	\$7,000	57	Limousine
Welch	Welch Motor Car Co.	\$7,000	75	Optional
Simplex	Simplex Automobile Co.	\$6,750	53	Landaulet
Chadwick	Chadwick Eng. Works.	\$6,500	60	Runabout
De Luxe C.	De Luxe Motor Car Co.	\$6,250	50-60	Limousine
Pierce-Arrow 48	Pierce-Arrow Motor Car Co.	\$6,200	48	Landaulet
Thomas 6-70	E. R. Thomas Motor Co.	\$6,000	72	Touring
Thomas 4-60	E. R. Thomas Motor Co.	\$6,000	53	Limousine
Alco	American Locomotive Co.	\$6,000	60	Touring
Acme XXV	Acme Motor Car Co.	\$6,000	60	Touring
Pierce-Arrow 60	Pierce-Arrow Motor Car Co.	\$6,000	60	Touring
Peerless 25	Peerless Motor Car Co.	\$6,000	50	Touring
Welch	Welch Motor Car Co.	\$6,000	75	Optional
Austin	Austin Automobile Co.	\$6,000	60-90	Limousine
Oldsmobile Z.	Olds Motor Works.	\$6,000	54	Landaulet
Lozier H.	Lozier Motor Co.	\$6,000	51	Touring
Lozier H.	Lozier Motor Co.	\$6,000	44	Limousine
Locomobile 40	Locomobile Co. of America.	\$5,900	40	Limousine
Peerless 19	Peerless Motor Car Co.	\$5,800	38	Landaulet
Oldsmobile Z.	Olds Motor Works.	\$5,800	54	Limousine
Stearns 30-60	F. B. Stearns Co.	\$5,750	46	Limousine
Simplex	Simplex Automobile Co.	\$5,750	53	Touring
Simplex	Simplex Automobile Co.	\$5,750	53	Speed Car
Royal-Tourist M.	Royal-Tourist Car Co.	\$5,700	48	Limousine
Packard 30	Packard Motor Car Co.	\$5,650	40	Landaulet
Packard 30	Packard Motor Car Co.	\$5,550	40	Limousine
Chadwick	Chadwick Eng. Co.	\$5,500	60	Touring
Welch	Welch Motor Car Co.	\$5,500	50	Limousine
Peerless 19	Peerless Motor Car Co.	\$5,500	38	Limousine
Pierce-Arrow 40	Pierce-Arrow Motor Car Co.	\$5,400	40	Limousine
Studebaker B.	Studebaker Automobile Co.	\$5,100	36	Landaulet
Alco	American Locomotive Co.	\$5,000	40	Touring
Walter M.	Walter Automobile Co.	\$5,000	48	Touring
American Simplex D.	Simplex Motor Car Co.	\$5,000	50	Limousine
Austin	Austin Automobile Co.	\$5,000	60-90	Touring
Austin	Austin Automobile Co.	\$5,000	50-60	Limousine
Studebaker D.	Studebaker Automobile Co.	\$5,000	36	Limousine
Lozier H.	Lozier Motor Co.	\$5,000	44	Briarcliff
Knox M.	Knox Automobile Co.	\$5,000	48	Touring
American	American Motor Car Co.	\$5,000	50	Limousine
National 9-60	National Motor Veh. Co.	\$5,000	60	Touring
De Luxe	De Luxe Motor Car Co.	\$5,000	50-60	Optional
Pierce-Arrow 48	Pierce-Arrow Motor Car Co.	\$4,800	48	Touring
Austin	Austin Automobile Co.	\$4,700	60-90	Roadster
Stearns 30-60	F. B. Stearns Co.	\$4,700	46	Pullman
Apperson K.	Apperson Bros. Auto. Co.	\$4,700	48	Touring
Pierce-Arrow 36	Pierce-Arrow Motor Car Co.	\$4,650	36	Brougham
Stearns 30-60	F. B. Stearns Co.	\$4,600	46	Touring
Thomas 4-60	E. R. Thomas Motor Co.	\$4,500	53	Touring
Thomas 6-40	E. R. Thomas Motor Co.	\$4,500	31	Limousine
Alco	American Locomotive Co.	\$4,500	22	Limousine
Welch 4-L	Welch Motor Car Co.	\$4,500	50	Touring
Welch 4-0	Welch Motor Car Co.	\$4,500	50	Close Coupled
Welch 4-M	Welch Motor Car Co.	\$4,500	50	Runabout
Royal-Tourist M.	Royal-Tourist Car Co.	\$4,500	48	Touring
Apper-Toledo XXII	A. T. Motor Car Co.	\$4,500	38	Touring
Apperson-Toledo XXII	A. T. Motor Car Co.	\$4,500	38	Runabout
Matheson E.	Matheson Motor Car Co.	\$4,500	40	Touring
Acme XX	Acme Motor Car Co.	\$4,500	48	Touring
Acme XXI	Acme Motor Car Co.	\$4,500	48	Runabout
Gaeth XX	Gaeth Automobile Co.	\$4,500	38	Limousine
Oldsmobile ZR	Olds Motor Works.	\$4,500	54	Runabout
Oldsmobile Z	Olds Motor Works.	\$4,500	54	Touring
Locomobile 40	Locomobile Co. of America.	\$4,500	40	Touring
Winton 6-18	Winton Motor Carriage Co.	\$4,500	60	Touring
Packard 18	Packard Motor Car Co.	\$4,400	26	Landaulet
Packard 18	Packard Motor Car Co.	\$4,300	26	Limousine
Peerless 19	Peerless Motor Car Co.	\$4,300	38	Touring
Peerless 19	Peerless Motor Car Co.	\$4,300	38	Roadster
Moon D.	Moon Motor Car Co.	\$4,250	32	Brevette
Winton 6-17	Winton Motor Carriage Co.	\$4,250	48	Limousine
National 9-50	National Motor Veh. Co.	\$4,200	50	Touring
Packard 30	Packard Motor Car Co.	\$4,200	40	Touring
Packard 30	Packard Motor Car Co.	\$4,200	40	Runabout
Oldsmobile D.	Olds Motor Works.	\$4,000	36	Landaulet
Alco	American Locomotive Co.	\$4,000	22	Touring
American Simplex D.	Simplex Motor Car Co.	\$4,000	50	Touring

CAR AND MODEL	Maker	Price	H. P.	Type
American Simplex D.	Simplex Motor Car Co.	\$3,950	24	Runabout
Great Western 22	Model Automobile Co.	\$4,000	50	Touring
Austin 50	Austin Automobile Co.	\$4,000	50-60	Touring
American "Tourist"	American Motor Car Co.	\$4,000	50	Touring
American "Traveler"	American Motor Car Co.	\$4,000	50	Runabout
Stevens-Duryea Y.	Stevens-Duryea Co.	\$4,000	54	Touring
Studebaker D.	Studebaker Automobile Co.	\$4,000	36	Touring
Studebaker B.	Studebaker Automobile Co.	\$4,000	36	Speed Car
Pierce-Arrow 36	Pierce-Arrow Motor Car Co.	\$4,000	36	Touring
Pierce-Arrow 24	Pierce-Arrow Motor Car Co.	\$3,950	24	Landaulet
Apperson Little 6	Apperson Bros. Auto. Co.	\$3,900	45	Touring
Moon D.	Moon Motor Car Co.	\$3,850	32	Town Car
Austin 45	Austin Automobile Co.	\$3,850	45-50	Limousine
Stearns 15-30	F. B. Stearns Co.	\$3,800	32	Landaulet
Oldsmobile D.	Olds Motor Works.	\$3,800	36	Limousine
Pennsylvania E.	Penn. Auto-Motor Co.	\$3,800	36.8	Touring
Austin 50	Austin Automobile Co.	\$3,750	50-60	Runabout
Franklin H.	H. H. Franklin Mfg. Co.	\$3,750	43	Touring
Stevens-Duryea X.	Stevens-Duryea Co.	\$3,750	36	Limousine
American	American Motor Car Co.	\$3,750	50	Roadster
Mora	Mora Motor Car Co.	\$3,750	42-50	Roadster
Marmon 50	Nordyke & Marmon Co.	\$3,750	50-80	Touring
Marmon 50	Nordyke & Marmon Co.	\$3,750	50-60	Close Coupled
Meteor F.	Meteor Motor Car Co.	\$3,750	45-50	Touring
Meteor F-1	Meteor Motor Car Co.	\$3,750	45-50	Baby Ton.
Columbia 48	Electric Vehicle Co.	\$3,750	29	Limousine
Pope-Hartford S.	Pope Mfg. Co.	\$3,750	30	Landaulet
National 9-40	National Motor Veh. Co.	\$3,700	40	Touring
Acme XXVII	Acme Motor Car Co.	\$3,700	35	Touring
Dorris	Dorris Motor Car Co.	\$3,600	28.9	Limousine
Mora	Mora Motor Car Co.	\$3,600	42	Touring
Lozier Little Six	Lozier Motor Co.	\$3,500	33	Touring
Studebaker A.	Studebaker Automobile Co.	\$3,500	27	Suburban
Stevens-Duryea U.	Stevens-Duryea Co.	\$3,500	36	Touring
Royal Tourist X	Royal-Tourist Car Co.	\$3,500	42	Touring
Royal-Tourist Y	Royal-Tourist Car Co.	\$3,500	42	Close Coupled
Oldsmobile Dr.	Olds Motor Works.	\$3,500	36	Coupe
Moon D.	Moon Motor Car Co.	\$3,500	30-35	Touring
Speedwell ME	Speedwell Motor Car Co.	\$3,500	40	Limousine
Acme XXVI	Acme Motor Car Co.	\$3,500	30	Touring
Locomobile 30	Locomobile Co. of America.	\$3,500	32	Touring
Locomobile 30	Locomobile Co. of America.	\$3,500	32	Runabout
Palmer-Singer XXII	Palmer & Singer Mfg. Co.	\$3,500	28	Landaulet
Palmer-Singer LXII	Palmer & Singer Mfg. Co.	\$3,500	57	Short Ton.
Corbin 14	Corbin Motor Veh. Corp.	\$3,500	32	Limousine
Pullman M.	York Motor Car Co.	\$3,500	40	Touring
Pittsburg Six D.	Pt. Pitt Motor Mfg. Co.	\$3,500	54	Touring
Premier 45	Premier Motor Mfg. Co.	\$3,500	45-55	Touring
Premier 45	Premier Motor Mfg. Co.	\$3,500	45-55	Runabout
Marmon 45	Nordyke & Marmon Co.	\$3,500	45-50	Runabout
Gaeth XX	Gaeth Automobile Co.	\$3,500	38	Touring
Gaeth XX	Gaeth Automobile Co.	\$3,500	38	Close Coupled
Mora Light Six	Mora Motor Car Co.	\$3,500	42-50	Racetype
Apperson M.	Apperson Bros. Auto. Co.	\$3,500	36	Touring
Palmer-Singer LXII	Palmer & Singer Mfg. Co.	\$3,520	57	Runabout
Coates-Goshen 25	Coates-Goshen Auto. Co.	\$3,250	25	Landaulet
Gearless	Gearless Motor Car Co.	\$3,250	30-60	Optional
Kissel K	Kissel Motor Car Co.	\$3,250	60	Coupe
Pittsburg Six C	Pt. Pitt Motor Mfg. Co.	\$3,200	54	Roadster
Kissel K D-9	Kissel Motor Mfg. Co.	\$3,200	40	Limousine
Packard 18	Packard Motor Car Co.	\$3,200	26	Touring
Packard 18	Packard Motor Car Co.	\$3,200	26	Runabout
Stearns 15-30	F. B. Stearns Co.	\$3,200	32	Touring
Stearns 15-30	F. B. Stearns Co.	\$3,200	32	Runabout
Pierce-Arrow 24	Pierce-Arrow Motor Car Co.	\$3,100	24	Runabout
Owen Thomas	Owen Thomas Motor Co.	\$3,000	48	Touring
Coates-Goshen 32	Coates-Goshen Auto. Co.	\$3,000	32	Touring
Moon C.	Moon Motor Car Co.	\$3,000	30-35	Touring
Moon C.	Moon Motor Car Co.	\$3,000	30-35	Runabout
Pittsburg Six B	Pt. Pitt Motor Mfg. Co.	\$3,000	54	Runabout
Kissel K G-9	Kissel Motor Car Co.	\$3,000	60	Touring
Pennsylvania C.	Penn. Auto-Motor Co.	\$3,000	36	Touring
Pennsylvania C.	Penn. Auto-Motor Co.	\$3,000	36	Runabout
Winton 6-17	Winton Motor Carriage Co.	\$3,000	48	Touring
Winton 6-17	Winton Motor Carriage Co.	\$3,000	48	Runabout
Thomas 6-40	E. R. Thomas Motor Co.	\$3,000	31	Touring
Thomas 4-16	E. R. Thomas Motor Co.	\$3,000	31	Flyabout
Selden 25	Selden Motor Veh. Co.	\$3,000	29	Limousine
Sultan	Sultan Motor Co.	\$3,000	10-12	Landaulet
Austin 45	Austin Automobile Co.	\$3,000	45	Touring
Pullman 4-40	York Motor Car Co.	\$3,000	40	Runabout
Pope-Hartford S.	Pope Mfg. Co.	\$3,000	30	Touring
Haynes X	Haynes Automobile Co.	\$3,000	36	Touring

CAR AND MODEL	Maker	Price	H. P.	Type
Knox O.....	Knox Automobile Co.....	\$3,000	38	Touring
Apperson M.....	Apperson Bros. Auto. Co.....	\$3,000	36	Runabout
Knox O.....	Knox Automobile Co.....	\$2,950	38	Short Ton
Knox O.....	Knox Automobile Co.....	\$2,900	38	Runabout
Haynes XI.....	Haynes Automobile Co.....	\$2,900	36	Runabout
Coates-Goshen 32.....	Coates-Goshen Auto. Co.....	\$2,850	32	Runabout
Austin 45.....	Austin Automobile Co.....	\$2,850	45	Runabout
Stevens-Duryea XXX.....	Stevens-Duryea Co.....	\$2,850	36	Runabout
Pope-Hartford S.....	Pope Mfg. Co.....	\$2,815	30	Roadster
Owen Thomas.....	Owen Thomas Motor Co.....	\$2,800	48	Dble. Road.
Franklin D.....	H. H. Franklin Mfg. Co.....	\$2,800	28	Touring
Oldsmobile D.....	Olds Motor Works.....	\$2,750	36	Touring
Oldsmobile Dr.....	Olds Motor Works.....	\$2,750	36	Toy Tonneau
Buick 6 & 7.....	Buick Motor Co.....	\$2,750	35	Runabout
Gearless 50.....	Gearless Motor Car Co.....	\$2,750	50	Optional
Pullman 6-30.....	York Motor Car Co.....	\$2,750	30	Touring
Mora Large Four.....	Mora Motor Car Co.....	\$2,750	60	Runabout
Mora Large Four.....	Mora Motor Car Co.....	\$2,750	60	Touring
Stevens-Duryea X.....	Stevens-Duryea Co.....	\$2,750	36	Racetype
Pope-Hartford S.....	Pope Mfg. Co.....	\$2,750	30	Touring
National 9-35.....	Pope Mfg. Co.....	\$2,750	30	Touring
Kisselkar G-9.....	Kissel Motor Car Co.....	\$2,750	35	Short Ton.
Kisselkar G-9.....	Kissel Motor Car Co.....	\$2,750	35	Optional
Chalmers-Detroit 40.....	Chalmers-Detroit Motor Co.....	\$2,750	40	Touring
Chalmers-Detroit 40.....	Chalmers-Detroit Motor Co.....	\$2,750	40	Roadster
Columbia 43.....	Electric Veh. Co.....	\$2,750	29	Touring
Corbin O-2.....	Corbin Motor Veh. Corp.....	\$2,650	32	Short Ton.
Elmore 44.....	Elmore Mfg. Co.....	\$2,500	2 cycle	Touring
Corbin K-2.....	Corbin Motor Veh. Corp.....	\$2,500	32	Touring
Corbin S-2.....	Corbin Motor Veh. Corp.....	\$2,500	32	Runabout
Rambler 45.....	Thos. B. Jeffery & Co.....	\$2,500	45	Touring
Speedwell M-D.....	Speedwell Motor Car Co.....	\$2,500	40	Touring
Speedwell M-C.....	Speedwell Motor Car Co.....	\$2,500	40	Roadster
Atlas T.....	Atlas Motor Car Co.....	\$2,500	22	Town Car
Acme XI X.....	Acme Motor Car Co.....	\$2,500	25	Runabout
Great Western 21.....	Model Automobile Co.....	\$2,500	40	Det. Tonneau
Glide G.....	Bartholomew Co.....	\$2,500	45	Touring
Halladay D.....	Streator Motor Car Co.....	\$2,500	40	Touring
Dorris.....	Dorris Motor Car Co.....	\$2,500	28.9	Optional
Rider-Lewis X.....	Rider-Lewis Motor Car Co.....	\$2,500	38.4	Tonneauette
Rider-Lewis IX.....	Rider-Lewis Motor Car Co.....	\$2,500	38.4	Roadster
Rider-Lewis VIII.....	Rider-Lewis Motor Car Co.....	\$2,500	38.4	Touring
Stoddard-D. 9-F.....	Dayton Motor Car Co.....	\$2,500	45	Touring
Stoddard-D. 9-K.....	Dayton Motor Car Co.....	\$2,500	45	Runabout
Premier 30.....	Premier Motor Mfg. Co.....	\$2,500	30-35	Touring
Chalmers-Detroit 30.....	Chalmers-Detroit Motor Co.....	\$2,500	24	Limousine
Apperson O.....	Apperson Bros. Auto. Co.....	\$2,450	30	Touring
Coates-Goshen 25.....	Coates-Goshen Auto. Co.....	\$2,450	25	Runabout
Marmon 32.....	Nordyke & Marmon Co.....	\$2,400	32-40	Touring
Marmon 32.....	Nordyke & Marmon Co.....	\$2,400	32-40	Runabout
Kisselkar D-9.....	Kissel Motor Car Co.....	\$2,300	40	Close Coupled
Rambler 44.....	Thos. B. Jeffery & Co.....	\$2,250	34	Optional
Midland G.....	Midland Motor Co.....	\$2,250	30-35	Optional
Elmore 33.....	Elmore Mfg. Co.....	\$2,250	2 cycle	Landaulet
Palmer-Singer 32.....	Palmer & Singer Mfg. Co.....	\$2,250	28	Runabout
McCue.....	McCue Company.....	\$2,200	30	Touring
Pennsylvania D-25.....	Penn. Auto-Motor Co.....	\$2,100	28.9	Touring
Glide R.....	Bartholomew Co.....	\$2,000	45	Roadster
McCue.....	McCue Company.....	\$2,000	30	Roadster
Kisselkar D-9.....	Kissel Motor Car Co.....	\$2,000	40	Touring
Kisselkar D-9.....	Kissel Motor Car Co.....	\$2,000	40	Runabout
Selden 29.....	Selden Motor Veh. Co.....	\$2,000	29	Touring
Selden 29.....	Selden Motor Veh. Co.....	\$2,000	29	Roadster
Pennsylvania D-25.....	Penn. Auto-Motor Co.....	\$2,000	28.9	Touring
Lambert B-2.....	Buckeye Mfg. Co.....	\$2,000	40	Touring
Overland 34.....	Overland Automobile Co.....	\$2,000	35	Touring
Overland 34.....	Overland Automobile Co.....	\$2,000	35	Touring
Mitchell L.....	Mitchell Motor Car Co.....	\$2,000	35-40	Touring
Pullman K.....	York Motor Car Co.....	\$2,000	30	Touring
Stoddard-D. 9-A.....	Dayton Motor Car Co.....	\$2,000	35	Touring
Stoddard-D. 9-C.....	Dayton Motor Car Co.....	\$2,000	35	Roadster
Jackson E.....	Jackson Automobile Co.....	\$2,000	35	Touring
Jackson E.....	Jackson Automobile Co.....	\$2,000	35	Roadster
Rambler 34-A.....	Thos. B. Jeffery & Co.....	\$2,000	32	Roadster
Benner.....	Benner Motor Car Co.....	\$1,850	25-30	Toy Tonneau
Atlas F.....	Atlas Motor Car Co.....	\$1,850	33	Touring
Mora Light Four.....	Mora Motor Car Co.....	\$1,850	24-28	Racetype
Franklin G.....	H. H. Franklin Mfg. Co.....	\$1,850	18	Touring
Atlas F.....	Atlas Motor Car Co.....	\$1,800	33	Runabout
Kisselkar LD-9.....	Kissel Motor Car Co.....	\$1,800	30	Coupe
Midland E.....	Midland Motor Co.....	\$1,800	25-30	Toy Tonneau
Benner.....	Bonner Motor Car Co.....	\$1,800	25-30	Roadster
McCue.....	McCue Company.....	\$1,800	30	Runabout
Elmore 33.....	Elmore Mfg. Co.....	\$1,750	2 cycle	Touring
Elmore 33.....	Elmore Mfg. Co.....	\$1,750	2 cycle	Roadster
Buick 16 & 17.....	Buick Motor Co.....	\$1,750	32	Optional
Benner.....	Benner Motor Car Co.....	\$1,750	25-30	Roadster
Inter-State 25.....	Inter-State Auto. Co.....	\$1,750	35-40	Optional
Lambert 19.....	Buckeye Mfg. Co.....	\$1,750	35-40	Touring
Maxwell DA.....	Maxwell-Briscoe Motor Co.....	\$1,750	24-30	Touring
Maxwell KA.....	Maxwell-Briscoe Motor Co.....	\$1,750	24-30	Runabout
Gearless Olympic.....	Gearless Motor Car Co.....	\$1,650	35	Optional
Great Western 20.....	Model Automobile Co.....	\$1,600	30	Det. Tonneau
Great Western 20A.....	Model Automobile Co.....	\$1,600	30	Runabout
Jackson H.....	Jackson Automobile Co.....	\$1,600	30	Touring
Jackson H.....	Jackson Automobile Co.....	\$1,600	30	Touring
Oakland 40-G.....	Oakland Motor Car Co.....	\$1,600	40	Touring
Oakland 40-F.....	Oakland Motor Car Co.....	\$1,600	40	Touring
Chalmers-Detroit 30.....	Chalmers-Detroit Motor Co.....	\$1,500	24	Touring
Chalmers-Detroit 30.....	Chalmers-Detroit Motor Co.....	\$1,500	24	Runabout
Gearless 35.....	Gearless Motor Car Co.....	\$1,500	35	Optional
Moline M.....	Moline Automobile Co.....	\$1,500	24	Touring
Cameron 11.....	Cameron Car Co.....	\$1,500	36	Touring
Cameron 11.....	Cameron Car Co.....	\$1,500	36	Roadster
Stoddard-D. 9-H.....	Dayton Motor Car Co.....	\$1,500	25	Runabout
Pullman K.....	York Motor Car Co.....	\$1,500	20	Runabout
Mitchell K.....	Mitchell Motor Car Co.....	\$1,500	28-30	Det. Tonneau
Kisselkar LD-9.....	Kissel Motor Car Co.....	\$1,500	30	Touring
Bendix 9-L.....	Bendix Co.....	\$1,500	25.6	Roadster
Overland 32.....	Overland Automobile Co.....	\$1,500	32	Touring
Overland 32.....	Overland Automobile Co.....	\$1,500	32	Runabout
Maxwell HD.....	Maxwell-Briscoe Motor Co.....	\$1,450	20	Touring
Cadillac 30.....	Cadillac Motor Co.....	\$1,400	25	Touring
Auburn B.....	Auburn Auto. Co.....	\$1,400	25-30	Touring

CAR AND MODEL	Maker	Price	H.P.	Type
Cadillac 30.....	Cadillac Motor Car Co.....	\$1,400	25	Roadster
Overland 31.....	Overland Automobile Co.....	\$1,400	30	Optional
Rambler 41.....	Thos. B. Jeffery & Co.....	\$1,350	22	Optional
Kisselkar LD-9.....	Kissel Motor Car Co.....	\$1,350	30	Roadster
Great Western 18.....	Model Automobile Co.....	\$1,350	20	Det. Tonneau
Cartecar G.....	Cartecar Company.....	\$1,350	22-24	Roadster
Cartecar K.....	Cartecar Company.....	\$1,350	22-24	Touring
Auburn C.....	Auburn Automobile Co.....	\$1,350	25-30	Roadster
Auburn D.....	Auburn Automobile Co.....	\$1,300	25-30	Roadster
Overland 30.....	Overland Automobile Co.....	\$1,300	30	Runabout
Auburn G.....	Auburn Automobile Co.....	\$1,250	24	Touring
Black 40.....	Black Mfg. Co.....	\$1,250	40	Touring
Lambert 30.....	Buckeye Mfg. Co.....	\$1,250	28	Touring
Atlas R.....	Atlas Motor Car Co.....	\$1,250	22	Runabout
Jackson C.....	Jackson Automobile Co.....	\$1,260	20-24	Touring
E-M-F 30.....	Everitt-Metzger-Flanders Co.....	\$1,250	25	Touring
E-M-F 30.....	Everitt-Metzger-Flanders Co.....	\$1,250	25	Roadster
Overland 30.....	Overland Automobile Co.....	\$1,250	30	Runabout
Regal A.....	Regal Motor Car Co.....	\$1,250	30	Touring
Regal B.....	Regal Motor Car Co.....	\$1,250	30	Roadster
Oakland 20-B.....	Oakland Motor Car Co.....	\$1,250	20	Optional
Buick F & G.....	Buick Motor Co.....	\$1,250	16	Touring
Halladay G.....	Streator Motor Car Co.....	\$1,200	24	Touring
Oakland 20-A.....	Oakland Motor Car Co.....	\$1,200	24	Roadster
Auburn K.....	Auburn Automobile Co.....	\$1,150	24	Optional
Rambler 47.....	Thos. B. Jeffery & Co.....	\$1,150	26.6	Touring
Richmond 1-3.....	Wayne Works.....	\$1,100	20-24	Touring
Cameron 15.....	Cameron Car Co.....	\$1,100	20-24	Roadster
Halladay F.....	Streator Motor Car Co.....	\$1,000	24	Surrey
Richmond J-2.....	Wayne Works.....	\$1,050	22.5	Surrey
Halladay E.....	Streator Motor Car Co.....	\$1,050	24	Roadster
Cartecar H.....	Cartecar Company.....	\$1,000	18-20	Runabout
Ford T.....	Ford Motor Co.....	\$1,000	20	Town Car
Reo D.....	Reo Motor Car Co.....	\$1,000	20-22	Touring
Reo HR.....	Reo Motor Car Co.....	\$1,000	20-22	Runabout
Mitchell J.....	Mitchell Motor Car Co.....	\$1,000	20	Runabout
Cameron 15.....	Cameron Car Co.....	\$1,000	20-24	Runabout
Buick 10.....	Buick Motor Co.....	\$1,000	22	Runabout
Cameron 14.....	Cameron Car Co.....	\$950	20-24	Roadster
Cadillac T.....	Cadillac Motor Car Co.....	\$950	10	Touring
Ford T.....	Ford Motor Co.....	\$950	20	Coupe
Richmond J-1.....	Wayne Works.....	\$900	22.5	Roadster
Cameron 14.....	Cameron Car Co.....	\$900	20-24	Runabout
Lambert A-3.....	Buckeye Mfg. Co.....	\$875	20	Touring
Middleby A or B.....	Middleby Automobile Co.....	\$850	25	Optional
Jackson K.....	Jackson Automobile Co.....	\$850	16-18	Touring
Jackson F.....	Jackson Automobile Co.....	\$850	16-18	Runabout
Ford T.....	Ford Motor Co.....	\$850	20	Touring
Maxwell LB.....	Maxwell-Briscoe Co.....	\$850	14	Runabout
Gyroscopic.....	Blomstrom Mfg. Co.....	\$800	16	Roadster
Lambert A-1.....	Buckeye Mfg. Co.....	\$800	20	Runabout
Gyroscopic.....	Blomstrom Mfg. Co.....	\$750	16	Optional
Anderson C.....	Anderson Carriage Co.....	\$650	12	Runabout
Brush B.....	Brush Runabout Co.....	\$550	7	Runabout
Maxwell A.....	Maxwell-Briscoe Co.....	\$500	10	Runabout
Reo G.....	Reo Motor Car Co.....	\$500	10	Runabout
Waltham 17.....	C. H. Metz.....	\$350	4	Buckboard

STEAM PLEASURE CARS.

CAR AND MODEL	Maker	Price	H. P.	Type
White-M.....	The White Co.....	\$4,000	40	Touring
Lane-17.....	Lane Motor Vehicle Co.....	\$3,100	30	Touring
Lane-18.....	Lane Motor Vehicle Co.....	\$3,000	30	Close Coupled
Lane-16.....	Lane Motor Vehicle Co.....	\$2,800	30	Roadster
Lane-15.....	Lane Motor Vehicle Co.....	\$2,000	20	Touring
White-O.....	The White Co.....	\$2,000	20	Touring
Lane-14.....	Lane Motor Vehicle Co.....	\$1,800	20	Runabout

FOREIGN PLEASURE CARS.

CAR AND MODEL	Importer	Price	H.P.
C. G. V.....	C. G. V. Import Co.....	\$10,000	90-120
Delaunay-B'ville.....	Palais de L'Automobile.....	\$10,000	60-75
Panhard.....	Panhard & Lavassor.....	\$8,700	65-80
Isotta.....	Isotta Import Co.....	\$8,500	50-65
Panhard.....	Panhard & Lavassor.....	\$7,500	50-60
C. G. V.....	C. G. V. Import Co.....	\$7,500	75-90
Fiat.....	Fiat Automobile Co.....	\$7,250	60
Delaunay B'ville.....	Palais de L'Automobile.....	\$7,000	40-55
Berliet.....	Berliet Import Co.....	\$6,500	40-50
Hotchkiss V.....	Hotchkiss Import Co.....	\$6,250	65
Delaunay-B'ville.....	Palais de L'Automobile.....	\$6,100	40-50
Fiat.....	Fiat Automobile Co.....	\$6,000	45
C. G. V.....	C. G. V. Import Co.....	\$6,000	50-60
Isotta.....	Isotta Import Co.....	\$5,600	40-45
Berliet.....	Berliet Import Co.....	\$5,500	40-50
Panhard.....	Panhard & Lavassor.....	\$5,400	35-45
Fiat.....	Fiat Automobile Co.....	\$5,250	45
Isotta.....	Isotta Import Co.....	\$5,250	15-25
Delaunay-B'ville.....	Palais de L'Automobile.....	\$5,100	25-40
Delaunay-B'ville.....	Palais de L'Automobile.....	\$5,000	28-35
Panhard.....	Panhard & Lavassor.....	\$5,000	30-40
Fiat.....	Fiat Automobile Co.....	\$5,000	40
C. G. V.....	C. G. V. Import Co.....	\$5,000	30-40
Hotchkiss U.....	Hotchkiss Import Co.....	\$4,750	30-40
Isotta.....	Isotta Import Co.....	\$4,600	18-24
Berliet.....	Berliet Import Co.....	\$4,500	20-30
Panhard.....	Panhard & Lavassor.....	\$4,500	25-35
Fiat.....	Fiat Automobile Co.....	\$4,500	25
C. V. G.....	C. V. G. Import Co.....	\$4,500	20-30
Isotta.....	Isotta Import Co.....	\$4,500	18-24
Delaunay-B'ville.....	Palais de L'Automobile.....	\$4,400	20-30
Isotta.....	Isotta Import Co.....	\$4,250	14-20

CAR AND MODEL	Importer	Price	H.P.
Hotchkiss X.	Hotchkiss Import Co.	\$4,250	20-30
Panhard.	Panhard & Lavassor.	\$4,100	18-30
Delaunay-B'ville.	Palais de L'Automobile.	\$4,000	15-25
Berliet.	Berliet Import Co.	\$4,000	15-20
Lancia.	Hol-Tan Co.	\$4,000	12-18
Delaunay-B'ville.	Palais de L'Automobile.	\$3,500	15-22
Hotchkiss T.	Hotchkiss Import Co.	\$3,500	16-20
Panhard.	Panhard & Lavassor.	\$3,500	15-20
Fiat.	Fiat Automobile Co.	\$3,500	18
Lancia.	Hol-Tan Co.	\$3,500	12-18
C. G. V.	C. V. G. Import Co.	\$3,300	12-15
Lancia.	Hol-Tan Co.	\$3,300	12-18
C. G. V.	C. G. V. Import Co.	\$3,250	15-20
Panhard.	Panhard & Lavassor.	\$3,000	10-15
C. G. V.	C. G. V. Import Co.	\$3,000	12-15
Lancia.	Hol-Tan Co.	\$3,000	12-18
Delaunay-B'ville.	Palais de L'Automobile.	\$2,800	10-15
Fiat.	Fiat Automobile Co.	\$2,750	12
C. G. V.	C. G. V. Import Co.	\$2,500	8-10
Panhard.	Panhard & Lavassor.	\$1,850	8-11
DeDietrich Cfo-8.	DeDietrich Import Co.	75	
DeDietrich FER.	DeDietrich Import Co.	60	
DeDietrich Cfo.	DeDietrich Import Co.	40	
DeDietrich Cfn.	DeDietrich Import Co.	28	
DeDietrich Cff.	DeDietrich Import Co.	18	
DeDietrich Cfg.	DeDietrich Import Co.	20	
DeDietrich VPH.	DeDietrich Import Co.	14	
Renault.	Renault Freres Selling Branch.	50-60	
Renault.	Renault Freres Selling Branch.	35-45	
Renault.	Renault Freres Selling Branch.	20-30	
Renault.	Renault Freres Selling Branch.	14-20	
Renault.	Renault Freres Selling Branch.	12-16	
Renault.	Renault Freres Selling Branch.	10-14	
Renault.	Renault Freres Selling Branch.	9-12	
Renault.	Renault Freres Selling Branch.	8-10	

HIGH WHEEL TYPES OF PLEASURE CARS.

CAR AND MODEL	Maker	Price	H. P.	Type
Bendix 9H.	Bendix Company.	\$1,500	25.6	Roadster
Bendix 4.	Bendix Company.	\$1,400	25.6	Roadster
Black 40.	Black Mfg. Co.	\$1,250	40	Touring
Holsman H15.	Holsman Automobile Co.	\$1,000	26	Coupe
Staver 20.	Staver Carriage Co.	\$975	22-24	Roadster
Holsman 11.	Holsman Automobile Co.	\$800	12.8	Surrey
Zimmerman I.	Zimmerman Mfg. Co.	\$750	16	Surrey
Mier D.	Mier Carriage and Buggy Co.	\$750	16.2	Surrey
Duer.	Chicago Coach & Carriage Co.	\$750	16	Buggy
Kiblinger M.	W. H. McIntyre Co.	\$750	27	
Holsman 10.	Holsman Automobile Co.	\$750	12.8	Stanhope
Zimmerman K.	Zimmerman Mfg. Co.	\$735	16	Roadster
Holsman 9.	Holsman Automobile Co.	\$700	12.8	
Schacht K.	Schacht Mfg. Co.	\$680	18-20	Corning
Kiblinger P.	W. H. McIntyre Co.	\$675	16	
Zimmerman H.	Zimmerman Mfg. Co.	\$650	14	Runabout
Mier C.	Mier Carriage & Buggy Co.	\$650	16.2	Runabout
Hatfield 23.	Clark-Hatfield Auto. Co.	\$650	14.4	Buggy
Black 118.	Black Mfg. Co.	\$650	20	Surrey
Holsman 8.	Holsman Automobile Co.	\$650	12.8	
Zimmerman G.	Zimmerman Mfg. Co.	\$650	12	Buggy
Kiblinger GG.	W. H. McIntyre Co.	\$600	16	Surrey
Kiblinger NN.	W. H. McIntyre Co.	\$600	16	Roadster
Black 115.	Black Mfg. Co.	\$575	20	Roadster
Mier A & B.	Mier Carriage & Buggy Co.	\$575	12.8	Runabout
Kiblinger N.	W. H. McIntyre Co.	\$550	16	Runabout
Holsman 4.	Holsman Automobile Co.	\$550	16	Runabout
Anderson B.	Anderson Carriage Mfg. Co.	\$550	12	Runabout
Kiblinger L.	W. H. McIntyre Co.	\$500	13.5	Runabout
Kiblinger K.	W. H. McIntyre Co.	\$475	13.5	Runabout
Kiblinger H.	W. H. McIntyre Co.	\$450	13.5	Runabout
Black 12.	Black Mfg. Co.	\$450	14	Stanhope

ELECTRIC PLEASURE CARS.

CAR AND MODEL	Maker	Price	Model
Baker 1.	Baker Motor Vehicle Co.	\$4,000	Brougham
Babcock 7.	Babcock Electric Co.	\$4,000	Brougham
Rauch & Lang 144.	Rauch & Lang Carriage Co.	\$4,000	Combination
Rauch & Lang 144.	Rauch & Lang Carriage Co.	\$2,800	Coupe
Rauch & L 144 S.	Rauch & Lang Carriage Co.	\$2,700	Coupe
Woods 214 A.	Woods Motor Vehicle Co.	\$2,700	Combination
Baker M.	Baker Motor Vehicle Co.	\$2,500	Roadster
Baker.	Baker Motor Vehicle Co.	\$2,500	Coupe
Babcock.	Babcock Electric Co.	\$2,500	Town Car
Detroit D.	Anderson Carriage Co.	\$2,400	Brougham
Detroit C.	Anderson Carriage Co.	\$2,250	Coupe
R & L 13.	Rauch & Lang Carriage Co.	\$2,200	Victoria
Waverley 750.	Waverley Company.	\$2,150	Victoria
Woods 214.	Woods Motor Vehicle Co.	\$2,100	Victoria
Babcock 10.	Babcock Electric Co.	\$2,100	Coupe
R & L 12.	Rauch & Lang Carriage Co.	\$2,050	Stanhope
Babcock.	Babcock Electric Co.	\$2,000	Roadster
Rauch & Lang 10.	Rauch & Lang Carriage Co.	\$1,900	Stanhope
Detroit B.	Anderson Carriage Co.	\$1,900	Victoria
Detroit A.	Anderson Carriage Co.	\$1,850	Victoria
Baker L.	Baker Motor Vehicle Co.	\$1,850	Victoria
Baker R.	Baker Motor Vehicle Co.	\$1,850	Runabout
Studebaker.	Studebaker Automobile Co.	\$1,800	Coupe
Babcock 1.	Babcock Electric Co.	\$1,800	Special
Babcock 6.	Babcock Electric Co.	\$1,700	Phaeton
Columbia.	Electric Vehicle Co.	\$1,600	Phaeton
Waverley 74.	Waverley Co.	\$1,500	Stanhope
Studebaker.	Studebaker Automobile Co.	\$1,500	Stanhope
Detroit L.	Anderson Carriage Co.	\$1,350	Roadster

COMMERCIAL VEHICLES.

CAR AND MODEL	Maker	Price	H. P.	Type
Manhattan.	Mack Bros. Motor Car Co.	\$6,500	50	22 Bus
Manhattan.	Mack Bros. Motor Car Co.	\$6,000	50	5 Ton Dump
Manhattan.	Mack Bros. Motor Car Co.	\$5,500	50	20 Passenger
Manhattan.	Mack Bros. Motor Car Co.	\$5,100	50	5 Ton
Hewitt.	Hewitt Motor Co.	\$5,000	28	5 Ton
Manhattan.	Mack Bros. Motor Car Co.	\$5,000	50	16 Passenger
Manhattan.	Mack Bros. Motor Car Co.	\$4,800	50	12 Passenger
Studebaker 2012.	Studebaker Automobile Co.	\$4,500	Elec.	5 Ton
American O.	American Motor Truck Co.	\$4,500	65	5 Ton
Sampson 4-9A.	Alden Sampson Co.	\$4,500	40	4 Ton
Manhattan.	Mack Bros. Motor Car Co.	\$4,400	50	3 Ton Woolen
Knox 18.	Knox Automobile Co.	\$4,300	50	5 Ton
Manhattan.	Mack Bros. Motor Car Co.	\$4,250	50	3 Ton Exp.
Packard.	Packard Motor Car Co.	\$3,850	32	3 Ton
American D.	American Motor Truck Co.	\$3,800	55	Stage
American L.	American Motor Truck Co.	\$3,800	55	Truck
Randolph.	Randolph Motor Car Co.	\$3,750	40	4 Ton
Manhattan.	Mack Bros. Motor Car Co.	\$3,750	50	2 Ton
Lansden 46.	Lansden Company.	\$3,600	Elec.	2 Ton
Alco.	American Locomotive Co.	\$3,500	16	Express
Gramm-Logan X.	Gramm-Logan Motor Car Co.	\$3,500	45	3 Ton
Randolph.	Randolph Motor Car Co.	\$3,250	36	3 Ton
Grabowsky 600A.	Grabowsky Pow. Wagon Co.	\$3,100	25-30	Palace Car
Grabowsky 505A.	Grabowsky Pow. Wagon Co.	\$3,050	25-30	2 Ton
Hewitt.	Hewitt Motor Co.	\$3,000	24	2 Ton
Grabowsky.	Grabowsky Pow. Wagon Co.	\$3,000	25-30	Fire or Police
American 8 or M.	American Motor Truck Co.	\$3,000	35-40	Bus or Truck
Grabowsky 420A.	Grabowsky Pow. Wagon Co.	\$2,800	25-30	
Rockwell.	Bristol Eng. Works	\$2,750	20	Taxicab
American M.	American Motor Truck Co.	\$2,750	35-40	1 1-2 Ton
Studebaker 2008.	Studebaker Automobile Co.	\$2,700	Elec.	1 1-4 Ton
Lansden 36.	Lansden Company.	\$2,650	Elec.	1 1-2 Ton
Grabowsky 200A.	Grabowsky Pow. Wagon Co.	\$2,600	25-30	Bus
Randolph.	Randolph Motor Car Co.	\$2,500	35	2 Ton
Studebaker.	Studebaker Automobile Co.	\$2,500	Elec.	Ambulance
Speedwell.	Speedwell Motor Car Co.	\$2,500	24	Truck
Atlas.	Atlas Motor Car Co.	\$2,500	22	Taxicab
Pullman.	York Motor Car Co.	\$2,500	20	Taxicab
American S.	American Motor Truck Co.	\$2,500	25	1 Ton
Lansden 36.	Lansden Company.	\$2,450	Elec.	1 Ton
Studebaker 2007.	Studebaker Automobile Co.	\$2,300	Elec.	1,500 lbs.
Grabowsky.	Grabowsky Pow. Wagon Co.	\$2,300	25-30	1 Ton
Gramm-Logan V.	Gramm-Logan Mot. Car Co.	\$2,250	25	1 1-2 Ton
Autocar 18.	Autocar Company.	\$2,225	18	1 Ton
Randolph.	Randolph Motor Car Co.	\$2,000	22	Optional
Lansden 359.	Lansden Company.	\$1,850	Elec.	2 Ton
American T.	American Motor Truck Co.	\$1,750	20	Delivery
Gramm-Logan Y.	Gramm-Logan Mot. Car Co.	\$1,600	25	Delivery
Randolph.	Randolph Motor Car Co.	\$1,500	22	Optional
Maxwell OD.	Maxwell-Briscoe Co.	\$1,400	20	Delivery
Knox 20.	Knox Automobile Co.	\$1,400	12	Delivery
Hart-Kraft A-3.	Hart-Kraft Motor Co.	\$1,200	14	Delivery
Hart-Kraft A-2.	Hart-Kraft Motor Co.	\$1,175	14	Delivery
Hart-Kraft A-1.	Hart-Kraft Motor Co.	\$1,100	14	Delivery
Hart-Kraft A-0.	Hart-Kraft Motor Co.	\$1,050	14	Delivery
Ford T.	Ford Motor Co.	\$950	20	Taxicab
Kiblinger 150.	W. H. McIntyre Co.	\$825	16	Delivery
Duer.	Chicago Coach & Car. Co.	\$750	16	Delivery
Holsman 12.	Holsman Automobile Co.	\$700	12.8	Delivery
Brush.	Brush Runabout Co.	\$600	7	Delivery
Kiblinger R.	W. H. McIntyre Co.	\$475	13-16	Mail Wagon
Rapid.	Rapid Motor Vehicle Co.	24-30	1 Ton	
Rapid.	Rapid Motor Vehicle Co.	24-30	1 1-2 Ton	
Rapid.	Rapid Motor Vehicle Co.	24-30	16-20 Pass.	
Rapid.	Rapid Motor Vehicle Co.	24-30	Fire or Police	
Rapid.	Rapid Motor Vehicle Co.	24-30	Ambulance	
Rapid.	Rapid Motor Vehicle Co.	60	5 Tons	
Pittsburg.	Pittsburg Motor Veh. Co.	Elec.	Express	
Pittsburg.	Pittsburg Motor Veh. Co.	Elec.	1 Ton	
Pittsburg.	Pittsburg Motor Veh. Co.	Elec.	2 Ton	
Geneva.	Cleveland Autocab Co.	24	Taxicab	
Pope-Hartford.	Pope Mfg. Co.	30	Ambulance	
Pope-Hartford.	Pope Mfg. Co.	30	Fire or Police	
General.	General Vehicle Co.	Elec.	Delivery	
General.	General Vehicle Co.	Elec.	1-2 Ton	
General.	General Vehicle Co.	Elec.	1 Ton	
General.	General Vehicle Co.	Elec.	2 Ton	
General.	General Vehicle Co.	Elec.	3 1-2 Ton	
General.	General Vehicle Co.	Elec.	3 1-2 Ton	
General.	General Vehicle Co.	Elec.	5 Ton	
Champion.	Champion Wagon Co.	Elec.	Delivery	

ALL RIGHT, NOW, FOR CLEVELAND SHOW.

CLEVELAND, Feb. 2.—After considerable fluttering, the dove of peace has decided to rest securely on the local automobile show, scheduled for the week of February 22. Because all the dealers could not secure space which they considered suitable, an effort to hold a separate show was considered by some. Cooler heads have probably prevented this, and there is now little likelihood of any such venture. As it now stands, however, the Pierce-Arrow, Mitchel, Mora and Regal will not exhibit locally. Some of the dealers refused to accept balcony space, that being the underlying cause of the trouble. It is impossible to get all in on the ground floor, owing to lack of space.

CARS HAVING THEIR FIRST 1909 SHOWING

ONE big event has the advantage of including everything to be seen by way of automobiles in a way to render comparison much more easy, and with less chance of defeating the aim. The average autoist goes to an automobile exhibition with the idea of sizing up the situation against the time when it will be up to him to pick the car which will more nearly accord with his needs, and memory is too treacherous to enable him to do full justice to the situation when the cars have to be examined in two installments, with a difference in time of two weeks.

In New York City some of the cars did not show in either the Palace or the Garden, and it is fortunate for the interested autoist that in Chicago all are to be seen at one time and place. Also as a matter of fact it seems that at Chicago there are quite a number of exhibits which were not at the shows in New York,

and it is of equal interest to note that even the companies which did show in the metropolis found it desirable to vary the scenery to quite some extent, in that they went to Chicago prepared to extend the interest so as to include types of cars not displayed before for 1909 selling.

In the tabulations of cars will be found quite a number which are introduced for the first time at Chicago, and the electric section will be of especial interest. The situation at Chicago, taking it as a whole, leaves little to be desired, and as before stated it is a great advantage to be able to see all the cars at one time and make a selection in the light of all the facts. Herewith are described some of the new faces, in one way or another, for 1909. They represent a certain advance in the industry, and that they are potent factors is fully assured.

Auburn.—The Auburn Automobile Company, Auburn, Ind., has brought out an entirely new model this year which will be built in connection with its present two-cylinder model. The new model is equipped with a four-cylinder Rutenber motor, the cylinders being separately cast with integral heads, water jackets and valve chambers. Valves are all on one side. The camshaft, crankshaft, and connecting rods are all drop forgings with ground bearing surfaces, and cams are integral with shafts. The crankcase, of cast aluminum alloy, is divided horizontally and all bearings are contained in the upper half—the lower portion acting as a reservoir for the self-contained oil system. The lower part of the case is divided into four compartments, and the level is maintained by an overflow arrangement and a gear pump. Features of the cooling system are the solid brass water connections, the bronze water pump attached to the end of the camshaft by means of a square-jawed self-centering coupling, the adjustable belt-driven fan attached to the front cylinder, and the cellular type of vertical tube radiator. The carburetor shuts the main air intake to facilitate starting in cold weather. Jump spark ignition with a standard storage battery, dry cells, Lacoste timer and a vibrator coil on the dash, is the regular equipment, but provision is made for the attachment of a Bosch magneto. The multiple disc clutch is contained in an aluminum housing which is part of the transmission case and runs in oil. The transmission of the sliding gear, selective type has three forward speeds, and is fitted with Hess-Bright ball bearings. Drive is by shaft to a floating type rear axle, which is equipped with ball thrust and roller-bearings. The front axle is a one-piece I-beam forging with bronze bushings for the steering spindles. The frame is pressed steel, elliptic springs being used in the rear. The brakes are of the contracting and expanding type on the rear wheel drums. This car has 106-inch wheelbase, 10 inches road clearance and 58-inch tread. The smaller car is practically unchanged, the same two-cylinder, double-opposed, water-cooled motor being used.

Bendix.—The Bendix Automobile Company, Chicago, is building four motor buggy models. No. 4 and No. 5, equipped with roadster and surrey bodies, have a four-cylinder vertical, water-cooled motor, friction transmission, double chain drive, 96-inch wheelbase, and 41-inch wheels equipped with 2-inch solid tires. Models 9-H and 9-L are roadsters with single or double rumble seats, the same motor as in other models, multiple disc clutch, selective transmission, double chain drive, 41-inch wheels equipped with 3-inch solid tires, full elliptic springs, and a wheel-

base of 105 inches. The cylinders of this motor are cast in pairs with integral heads, valve chambers and water jackets; valves are all on one side and operated from a camshaft within the crankcase. The camshaft bearings are of the annular ball type; crankshaft and connecting rod bearings are of Banca babbit with phosphor bronze wrist-pin bushings. Ignition is jump spark with Splitdorf magneto, dry cells and one set of plugs; the honeycomb radiator, a centrifugal pump, and a belt-driven fan constitute the cooling system. Annular ball bearings are used throughout the transmission.

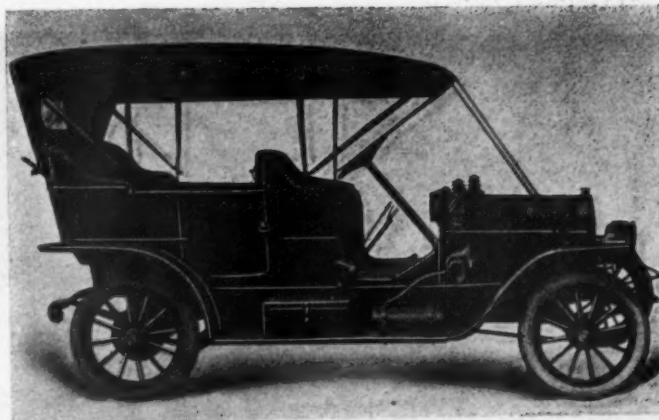
Berliet.—The Berliet, one of the only two foreign exhibitors to be at the show, is in four models for 1909. These consist of four chasses, equipped with all types of bodies, two of which, the 15-20 horsepower and the 20-30 horsepower, are shaft-drive cars, and the other two, rated at 40-50 horsepower, are chain driven. Three of these models have four-cylinder motors, and the fourth has a six-cylinder motor. All motors are of the same mechanical construction except that in the six-cylinder motor the cylinders are cast in threes, whereas in the four-cylinder the cylinders are cast in pairs, and in the 15-20-horsepower model the Thermo-syphon cooling system is used.

Clark-Hatfield.—The Clark-Hatfield motor buggy, built by the Clark-Hatfield Auto Company, Oshkosh, Wis., varies considerably from the general line of vehicles of this type, in that 39-inch wheels are used instead of the greater diameter. It also has the motor located transversely above the back axle, with a friction drive system ahead of the motor and final drive by chain to the solid one-piece rear axle. The motor, an opposed air-cooled one of the four-cycle type, has 4¼ by 4-inch cylinders cast with circumferential cooling flanges. The crankcase, made in the usual box type, has the crankshaft carried in the lower part, and the upper portion serves chiefly in the capacity of a cover and carries the camshaft. Particular care has been shown in the make-up of the motor, accessibility being kept in the foreground. The crankshaft, 1¼-inch in diameter, has Parsons white brass bushings 3⅝ inches long, all hand-scraped to size. Connecting rods are forty-point carbon steel provided for adjustment at the crankshaft end by five thin brass liners. The cylinders are bored, annealed, and finally surfaced by grinding and lapping. The cooling fins are thin and unusually deep, giving a total radiating surface of 3,600 square inches. Both sets of mechanical valves are of nickel steel, located in pockets on the upper side of the cylinder. The springs are set in pressed steel cups lined with asbestos and elevated from the cylinder walls to protect them from heat.

Columbus Electric.—The five types of electric vehicles manufactured by the Columbus Buggy Company, Columbus, O., are designated 1000, 1001, 1002, 1100 and 1202, fitted with Victoria and buggy top Stanhope, four-passenger brougham, and two or three passenger coupé bodies, respectively. Model 1000 has a multipolar type motor of about 2-horsepower and twenty-four cells of 9 M. V. Exide battery. This motor is set in an aluminum frame, fitted with annular ball bearings, and is provided with a noiseless transmission from the armature to the jackshaft, enclosed in an aluminum case. The controller is of the radial type and fool-proof. Drive to the rear axle is by means of side chains provided with mud guards. The steering gear is of the side lever type. The service brake operates on the shaft and is applied by a further movement of the controller after the motor is cut out of service, and the foot brake operates upon the rear wheel drums. The frame is of pressed steel, full elliptic rear, and half platform front springs are used; wheels are equipped with 30 by 3½-inch front and 31 by 4-inch rear tires and roller bearings. The wheelbase is 74 inches, and the car weighs 1,725 pounds. Model 1001 is the same, except that the body is fitted with a Victoria top. Model 1002 is the same as Model 1000, except that it has a two-passenger coupé body, with an extra child's seat, is inside driven and weighs 1,875 pounds. Model 1100 is also the same as Model 1000, except that it has an 86-inch wheelbase, 34 by 4-inch pneumatic tires, a 2½-horsepower motor, twenty-four cells of 11 M. V. Exide, weighs 2,250 pounds, and has a four-passenger surrey type body. Model 1202 has four-passenger coupé body, inside driven, 76-inch wheelbase, twenty-four cells of 11 M. V. Exide battery, 32 by 3½-inch front and 33 by 4-inch rear tires.

Dorris.—The Dorris car, manufactured by the Dorris Motor Car Company, St. Louis, is built with touring car, roadster, combination roadster and touring car, limousine and landaulet bodies this year, all on the same chassis, which is somewhat changed from that of previous years. The intake pipe is made of copper tubing instead of aluminum; the front engine hanger is changed so that the camshaft can be removed without removing the hanger; the clutch housing has been changed so that the crankshaft can be removed by taking off the gearbox only. The steering gear has been improved; the brakes are now operated by a cam and are lined with thermoid, and the wheelbase has been lengthened 2 inches by placing the cross spring at the rear on a bracket attached to the back cross member of the frame. The motor valves are in cages in the head and operated by means of rocker arms from one camshaft contained in the crankcase. The latter is a one-piece iron casting, with two large inspection plates on either side, held in place by a central yoke. Parsons bronze bearings are used throughout, and the connecting rods are drilled for the lubrication of the wrist pins. A mechanical oiler with six sight feeds, one for each cylinder and the two end bearings, is operated from the camshaft by means of an eccentric.

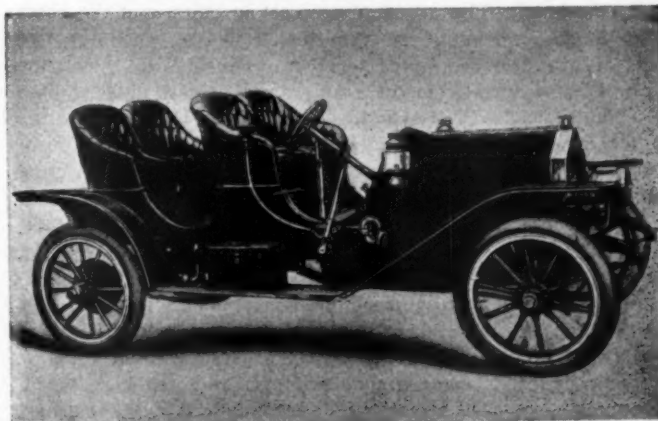
Duer.—The Chicago Coach and Carriage Company makes the Duer motor buggy, which is presented in practically the same design as last year, excepting that a larger motor is used, having a 4½-inch bore with 4-inch stroke, instead of the 4 by 4 type of last season. This motor is constructed to be interchangeable with the smaller size, which permits of buyers having an option on the horsepower when purchasing. The Duer has several characteristics, all of its own, one of which is the transmission used. The motor is air-cooled, located crosswise in front and lubricated from a two-feed mechanical oiler, one lead of which passes to the left cylinder and the other to the cam box where it feeds the two to one gear. The right cylinder is oiled entirely by splash. The reason of feeding an oil lead to the left cylinder only is that the latter is cared for by the splash from the crankcase which, owing to the rotation of the crankshaft, receives a greater quota of oil from this source than does the other cylinder. A change in the running gear of this car has been the strengthening of the axle as well as the wheels. The axles are now 1¼ inches square, and the wheels made with 1½-inch spokes instead of 1½. The use of 44 and 48-inch wheels gives the car an out-and-out motor buggy appearance.



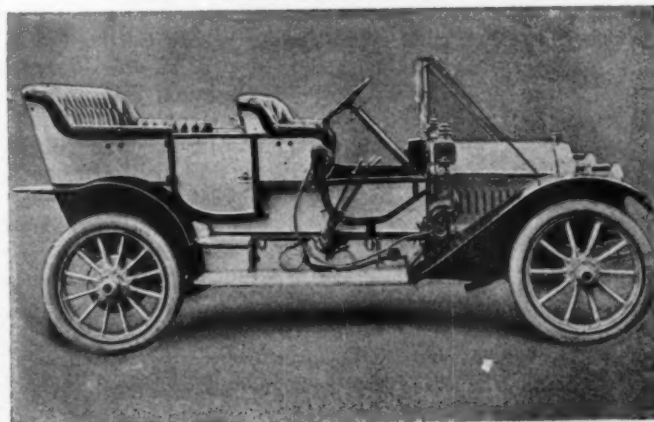
Halladay Model D Touring Car with Top Complete.



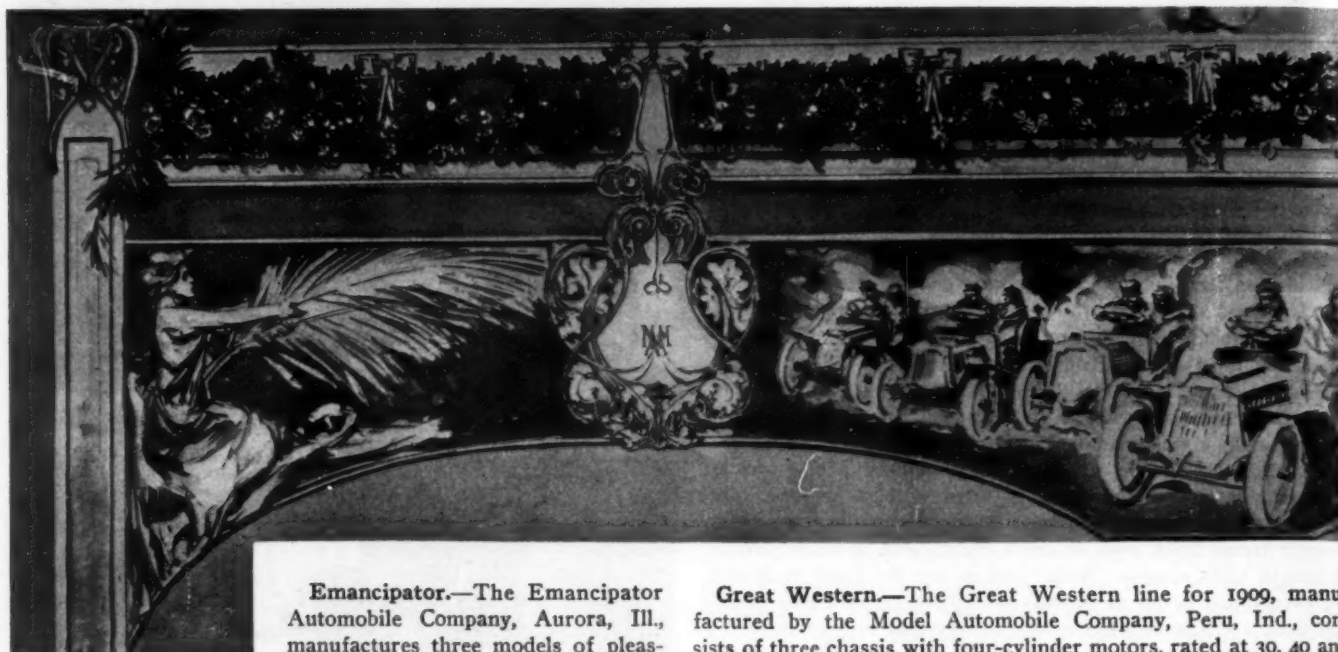
Dorris Known as Model F with Top and Accessories.



Great Western with a Body for Two Times Two.



Olds Touring Car with a Roomy Tonneau and Luxurious.



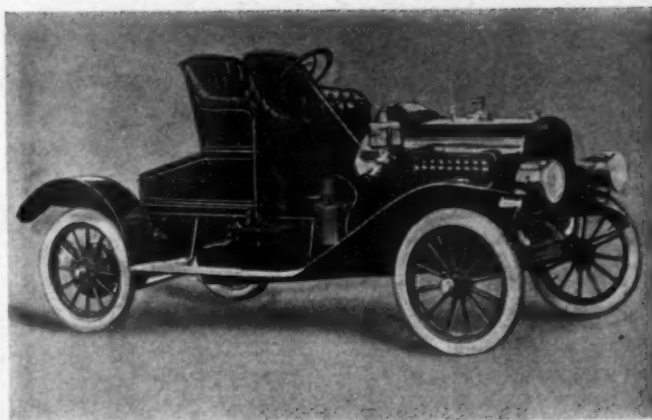
Emancipator.—The Emancipator Automobile Company, Aurora, Ill., manufactures three models of pleasure cars. Model A, five-passenger touring car, and B, four-passenger toy tonneau, and the Aurora runabout with rumble seat. These models have a four-cylinder multi-unit quadruple opposed motor, watercooled, and rated at 20 horsepower; a planetary three-point suspension transmission; floating type rear axle; 32-inch wheels; 3½-inch pneumatic tires and 100-inch wheelbase, but the Aurora model has a two-cylinder opposed motor, watercooled and rated at 16 horsepower, and three-quarter platform rear springs. The four-cylinder motor of the Emancipator models is located in front under the hood. The cylinders are cast in pairs, and the bases of each pair widen out to form the crankcase when the two pairs of cylinders are bolted together. The lugs by which the motor is suspended from the frame are also cast integral with the cylinder heads. The cylinders being of the L-type, all valves are located on the top side and operated by means of offset push-rods. The pistons are also cast in pairs with but one connecting rod for each pair; and the crankshaft of the two-throw type rests on two babitted phosphor bronze bearings. A cellular type radiator is used in connection with a thermo-syphon water-cooling system; ignition is by jump spark with battery and coil, and lubrication is by means of a five-feed mechanical oiler. The planetary transmission is equipped with babbit bearings, and fibre-lined steel bands acting upon pressed steel drums are used for low and reverse speeds while a cone clutch is used for high speed. The floating rear axle is equipped with Standard roller-bearings. The frame is of pressed steel; an irreversible steering gear with the tie-rod back of the front axle is used; and the brakes are of the internal and external type on the rear wheel drums.

Glide.—The Glide cars, manufactured by the Bartholomew Company, Peoria, Ill., are now built in two models, the new addition to the family being the Model R roadster. The Model G touring car is a refinement of the 1908 Glide, with but few changes. The fan is now placed on an adjustable bracket on the front cylinder; the front axle is dropped instead of straight; 4¼-inch tires are used instead of the 4-inch; wider running boards have been fitted, and the steering gear, speed change, and brake levers have been improved. Both models are identical except for the difference in wheelbase, wheels, gasoline capacity, and the greater road clearance on the roadster. A four-cylinder Rutenber motor is used, of the vertical, water-cooled type with separately cast cylinders and valves all on one side, operated from one camshaft. The crankshaft is supported on five phosphor bronze bearings in the upper half of the case, which is of aluminum. The lower portion of the crankcase forms a reservoir for the self-contained oiling system.

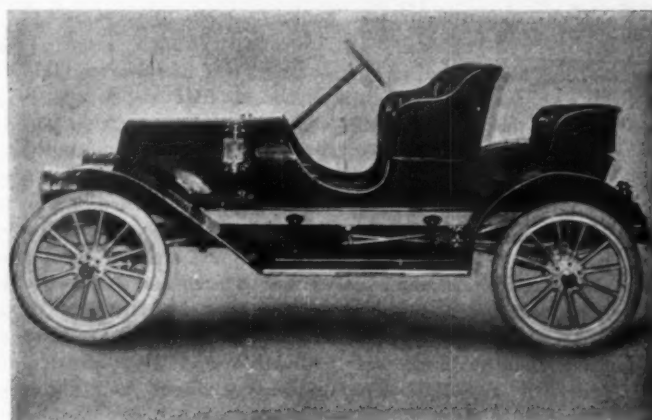
Great Western.—The Great Western line for 1909, manufactured by the Model Automobile Company, Peru, Ind., consists of three chassis with four-cylinder motors, rated at 30, 40 and 50 horsepower, respectively, and one chassis with a two-cylinder motor which is a reproduction of the Model 14 of 1908, with a few minor changes, such as longer wheelbase, semi-elliptic springs in front in place of elliptics, and a high-tension magneto, which is now included in the regular equipment. The three models with the four-cylinder motors are practically the same except in length of wheel bases, sizes of tires, and spring suspension, the 50-horsepower car having semi-elliptic springs all around, but elliptic rear springs are used on the small models. The motor is characterized by its valve arrangement, the exhaust valves being located centrally in the top of the cylinder heads, and operated by means of rocker arms and push rods from the camshaft in the crankcase, while the intake valves are in the bottom of the valve chambers on the right side of the cylinders, and are operated from the same camshaft by means of adjustable lifters. The cylinders are separately cast with integral heads and water jackets and bolted on to studs which pass right through the crankcase to support the five bronze bearing caps of the crankshaft. The crankcase is of aluminum with a removable lower portion, and has two large inspection plates on either side, held in place by one central yoke for each pair. The crankshaft is heat-treated, ground and offset ½-inch. The water circulation is maintained by a gear driven pump located at the front of the motor on the left, and the magneto occupies the same position on the opposite side. An adjustable belt-driven fan, attached to the front cylinder, assists in the cooling. Double ignition is used, with magneto and battery. Lubrication is by means of a seven-feed mechanical oiler, which is ratchet driven, and located at the rear, on the left side under the exhaust pipe. A cone clutch is used, faced with Raybestos, with springs underneath to ease the engagement. Between the clutch, which is released through a ball-thrust bearing, and the transmission, is a double universal joint which allows of the usual sliding for disengagements. A selective gearset, giving three speeds forward, is carried on the same subframe which supports the motor, and Timken roller bearings support both shafts which lie in the same vertical plane. A floating type rear axle runs on ball-bearings, while the front axle is drop-forged of I-beam section with ball-bearing spindles. Annular ball-bearings are used in the wheels. The steering gear is of the worm and sector type; the main frame is of pressed channel steel, narrowed in front to reduce the turning radius, and the brakes are contracting and expanding on rear wheel drums. The two-cylinder car is equipped with an opposed motor located amidships on the left hand side, bringing the flywheel directly in the middle and the planetary transmission to the right.

Halladay.—In connection with its five- and seven-passenger, 40-horsepower touring car, the Streator Motor Car Company, Streator, Ill., is bringing out an entirely new model. The chassis of this new model may be fitted with either two-passenger roadster with artillery rear seat, surrey type or touring car bodies, and has a four-cylinder motor with cylinders separately cast, but having integral heads, waterjackets and valve chambers. The valves are on opposite sides and operated from two camshafts, with integral cams. The crankshaft is heat treated and ground, and Cramp's ship-metal bearings are used throughout the motor. Ignition is jump spark with storage battery and Bosch magneto as extra equipment. Lubrication is by splash in the crankcase, the level being maintained by means of a gear pump in the sump of the crankcase. A thermo-syphon cooling system is used with a vertical tube radiator, and a fan driven by belt from the crankshaft. The clutch of the multiple disk type, has twenty-eight metal disks. Drive from the clutch to the transmission, which is located on the rear axle, is through one universal joint, and a shaft enclosed in a torsion tube which is supported in front on lugs from a cross member of the frame. The transmission is of the sliding gear type with two forward speeds. Hess-Bright bearings are used throughout the transmission and Hyatt roller-bearings in the semi-floating rear axle. The frame is of pressed steel elliptic springs, being used in the rear, while the steering gear is of the worm and sleeve type with the tie-rod behind the axle. One set of contracting band brakes is provided, operated by pedal and acting on rear wheel drums. A number of improvements have been made on the Model D, 40-horsepower car, among which are a multiple disk clutch, selective sliding gear-set, the use of Hess-Bright annular ball-bearings throughout the gear-set and rear axle, and more room in the tonneau, owing to the lengthening of the wheelbase. The motor is of the Rutenber type. The crankshaft is supported on Cramp's ship metal bearings in the upper half of the aluminium crankcase. Lubrication is by splash, self-contained, the same as on the smaller car. Provision is made for the attachment of a Bosch high-tension magneto in connection with storage battery system.

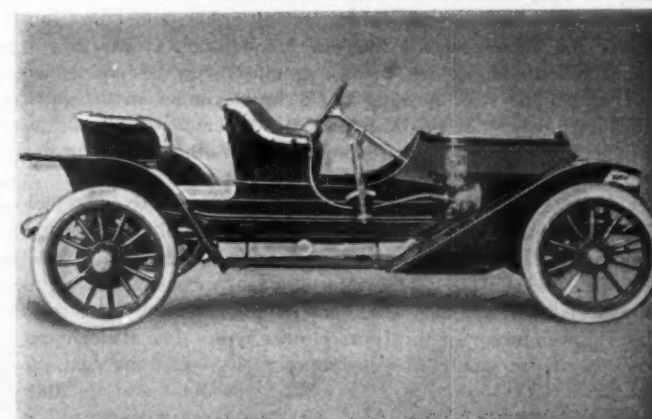
Meteor.—The Meteor line, built by the Meteor Motor Car Company, Bettendorf, Ia., comprises two models, Type F, a seven-passenger touring car, and Type F1, a baby tonneau car. The same chassis is used in both, except that in the roadster model the steering column is tilted more towards the horizontal. A Fedder's square tube radiator is used and is set back on the frame $2\frac{3}{4}$ inches, making the hood that much shorter. The Eisemann ignition system has been replaced by the Bosch dual system with the cylindrical coil and switch located on the dash. The fender design has also been slightly changed. These cars have a four-cylinder motor rated at 40 horsepower, a selective gearset, and are shaft-driven. A rather unusual appearance is given to the motor by the square cylinder trunks which rest upon the aluminum crankcase. These cylinders are cast separately with the valves on opposite sides, operated from camshafts contained within the crankcase. In order to reduce the length of the motor, as well as to facilitate casting, the front and rear faces of the water jackets are cut away and rectangular plates fitted. The crankcase is divided horizontally in two parts, the crankshaft being carried on five bearings in the upper section. The forward gears are contained in oil-tight housing. Use is made of hand-buffed aluminum pipes for intake and exhaust gases as well as for both intake and outlet water pipes. The intake and exhaust manifold are similar, and the water connections are at the top side of the valve chambers instead of in the cylinder heads. The magneto is located on the right side just back of the rear cylinder, and driven through a shaft from the forward gear-housing, and the five-feed mechanical oiler, located in the same position on the opposite side, is driven in the same manner. A multiple-disk clutch of the regular alternating disk type with an easy method of adjusting the clutch tension, is fitted. The gearset is carried in a one-piece casting, the front end of which is removable.



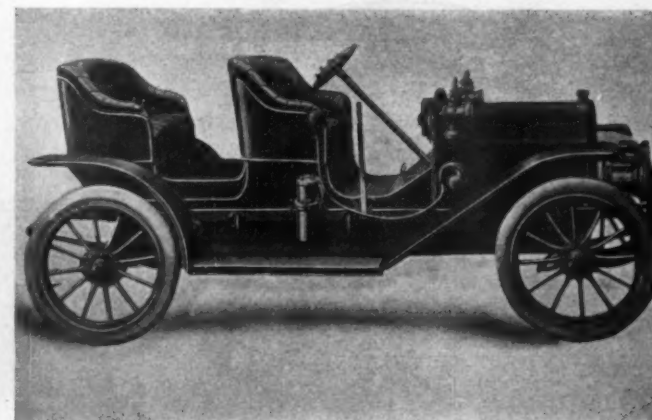
Rambler Runabout for the Professional and Pleasure.



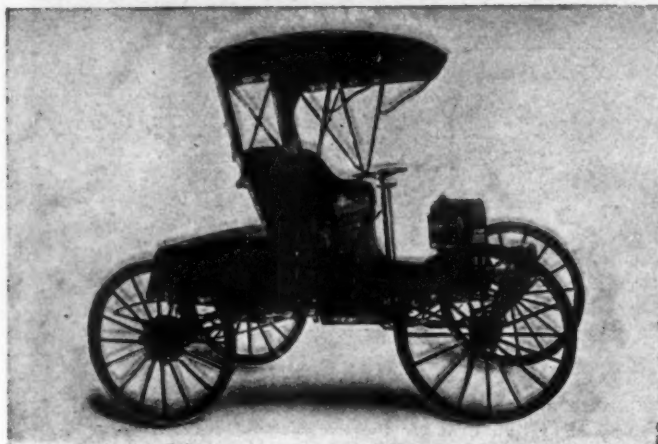
Cameron Roadster with Tools Under the Rumble Seat.



Chalmers-Detroit Runabout Built for Speed.



Halladay Model F with a Four-Passenger Body.



Clark-Hatfield Wheel Steer Buggy Type for Doctors.



Zimmerman Model H Buggy Type of Roadster Elegance.

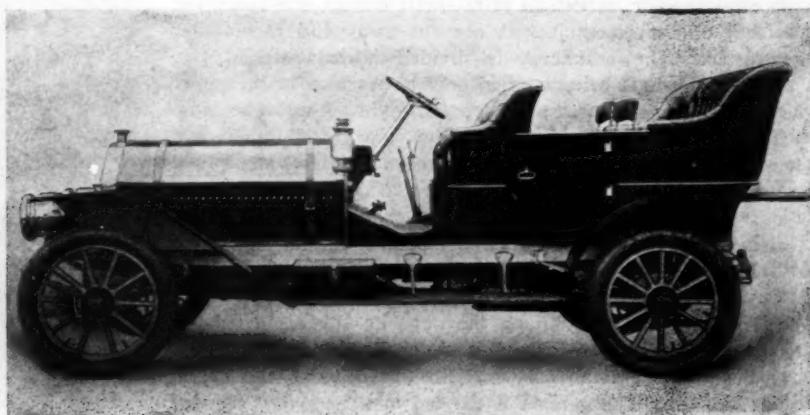
Mier.—The Mier Company, Ligonier, Ind., has four models for 1909 with runabout and surrey bodies. Models A and B are practically the same except for a few changes in regard to body construction. The chassis has a two-cylinder, water-cooled motor rated at 12.8 horsepower, A.L.A.M. Ignition is jump spark with storage battery. A tubular radiator is used in the cooling system. Lubrication is by means of a mechanical oiler. These cars have friction drive to the jackshaft and side chains to the rear wheels. An angle iron frame is used and brakes are of the expanding type. The wheelbase is 86 inches and solid or pneumatic tires may be fitted to the wheels, which are 30 inches in front and 32 inches in the rear. Models C and D are identical with Models A and B, except for body changes, and larger motors.

Oldsmobile.—The output of the Olds Motor Works, Lansing, Mich., for 1909 will consist of eight models built on four different chassis. Models D, toy tonneau and touring car, and DR, flying roadster and detachable toy tonneau, are built on a chassis with 112-inch wheelbase, 34-inch wheels, equipped with $3\frac{1}{2}$ and 4-inch tires, full elliptic rear springs, and a four-cylinder motor rated at 40 horsepower. Model X Special has 106-inch wheelbase, 32-inch wheels, $3\frac{1}{2}$ and 4-inch tires, three-fourth elliptic rear springs and a four-cylinder motor rated at 35 horsepower. Models Z, touring car and runabout, have a 130-inch wheelbase, 36-inch wheels, equipped with $4\frac{1}{2}$ and 5-inch tires, full elliptic rear springs and a six-cylinder motor rated at 60 horsepower. Model 20, the least expensive of the line, has a 91-inch wheelbase, 30-inch wheels with $3\frac{1}{2}$ -inch tires, full elliptic rear springs and a 22 horsepower motor of the four-cylinder type. The six-cylinder chassis is of the same general characteristics excepting that the parts are designed for the extra work to be done, and in other ways the "six" is in conformity with the requirements, and it represents degrees of flexibility such as will please users.

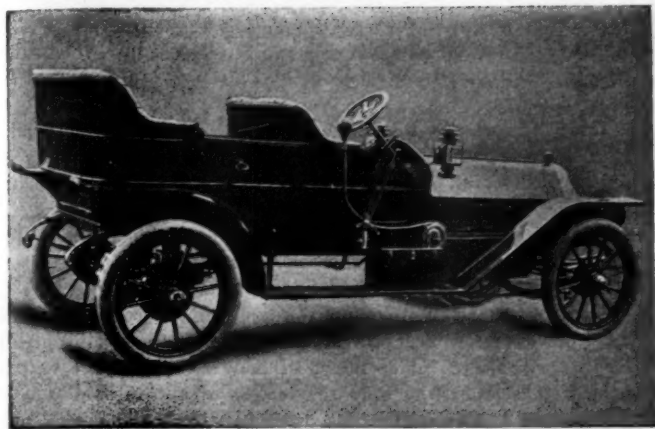
Pittsburg Six.—The Pittsburg Six cars are made by the Ft. Pitt Motor Car Company, New Kensington, Pa., in three models—a three-passenger roadster with disappearing rumble seat, a four-passenger roadster, and a seven-passenger touring car, all with practically the same chassis, excepting that for the seven-passenger touring car some frame changes are made to accommodate the larger body. Of particular interest in the Pittsburg six-cylinder chassis is the use of separately cast cylinders with opposite valves. This year a new style of intake manifold has been adopted. It is of the loop variety, in which a horizontal pipe gives off a lateral branch to each cylinder, this pipe being parallel with the feeding pipe of the same length from the carburetor uniting with it by end loops, so that the mixture leaving the carburetor travels in both directions through the feeder pipe. The mixture thus travels the same distance to each cylinder, part going in one direction and part in the other. The motor has shown a greater speed range since the adoption of this manifold. Another change this year is the employment of a Hele-Shaw multiple disk clutch which supersedes the cone type of former years. This clutch is of the regular Hele-Shaw type with corrugated disks, but incorporating certain changes which the American licensee has seen fit to make for American needs. A further change is the employment of vanadium steel in the rear axle, to which might be added a line of general improvements in many small details on the car. The Pittsburg Six motor for all three chassis is made with cylinders having $4\frac{3}{4}$ -inch bore and $5\frac{1}{4}$ -inch stroke, and is rated at 54-72 horsepower. According to the A.L.A.M. formula, is 54.6 horsepower. The cylinders are bored and ground to finish, the crankshaft revolves on seven bearings, and the valves have nickel-steel heads electrically welded to mild steel stems. The crankcase, cast in upper and lower halves, makes use of the lower as an oil reservoir in conjunction with splash lubrication.



Randolph Delivery Wagon with Cage Body.

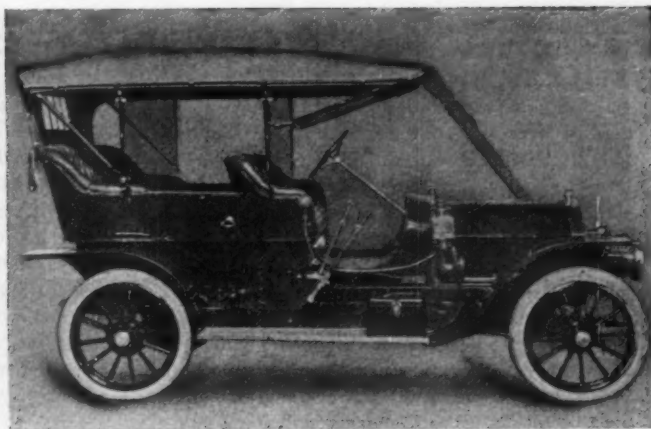


Popular Pittsburg Six Known as Model D.



Rider-Lewis Touring Car Rides on Scroll Elliptics.

Rambler.—The major efforts of Thomas B. Jeffery & Co., Kenosha, Wis., will be on four-cylinder cars, but a couple of two-cylinder types are also being marketed. The four-cylinder chasses are alike in design, but vary in size and constructive strength. They are known as models 44 and 45, the former a 34-horsepower chassis with cylinders $4\frac{1}{2}$ inches square and fitted with five-passenger body; and model 45, a 45-horsepower chassis with 5 by $5\frac{1}{2}$ -inch cylinders and seven-passenger body. In addition, however, both chasses are fitted with roadster and toy tonneau body style, and the company is manufacturing closed body types. The Rambler chassis contains several improvements over the 1908 type. The location of the timer at the right front of the motor has been improved by raising it, resulting in increased accessibility. The use of the magneto in conjunction with the batteries results in a complete dual system. The Rambler roller contact timer is used in which the wires remain stationary during any advance or retard of the spark. A change in the lubrication system is that the oiler is mounted lengthwise and further to the rear than last year. In the new location, its accessibility is increased and the capacity has been increased 50 per cent. The water pump is now located back of the transverse tubular support at the front end, and in this new location is entirely separate from the half-time gear housing. An important improvement in the selective gearset is that the two shifter rods are carried in a boss in the right side of the case, one being a rod and the other a surrounding sleeve. On the rear end of each is a short arm with ball ending, with which the shifter mechanism attaches. A change in the clutch is the discontinuance of the balanced type of inverted cone heretofore used and the adoption of a direct cone with a 50 per cent. greater friction surface.

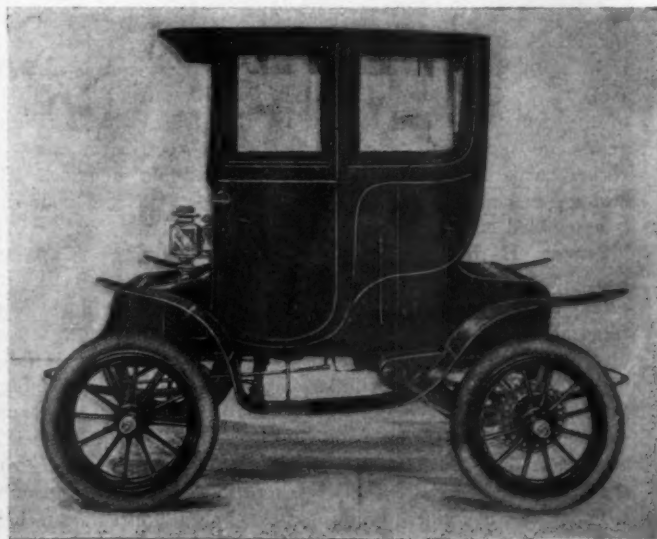


Auburn Touring Car with a Canopy Top and Room.

Randolph.—The Randolph motor truck is a new Chicago product, manufactured by the Randolph Motor Car Company, and is somewhat exclusive in its lines, in that it is designed for a 1,250-pound load and combines in its make-up a transmission system not common in vehicles of this capacity. Its chassis contains a two-cylinder opposed motor mounted transversely in front and transmission from this is through a planetary gearset of the conventional disk and wheel type, the wheel mounted on a cross jackshaft on the ends of which are sprockets for driving to the rear wheels. The car, built with an 80-inch wheelbase, and 34-inch front and 36-inch rear wheels, is well adapted for light delivery purposes and is built with enclosed bodies of wire screen or panel variety. Most notable is the dropping of the frame at the front end, which lowers the center of gravity to some extent and makes it possible to use a fairly large friction disk without encroaching upon the load-carrying space. The front of the frame is supported on semi-elliptics in the usual manner, but full elliptics do service in the rear, supporting the frame through trunnions. A differential gear is used on the cross shaft carrying the friction wheel, and when engaging the friction wheel with the friction disk the jackshaft is not carried forward as so frequently done in friction constructions, but the disk is thrust rearward against the wheel. The motor rated at 22 horsepower, uses conventional waterjacketed cylinders with valve chambers, so that the valve springs, etc., are accessibly located. The cylinders bolt to opposite sides of the crankcase and end plates are used for the bearings, which does away with the splitting of the case. The top is a removable plate, and when off discloses the valve mechanisms. Cooling is by thermo-syphon, the water course being from the radiator base to the motor.



Franklin Straight Front Brougham for Town Service.



Columbus Electric for Town Car Service.

Richmond.—The Richmond line for 1909, manufactured by the Wayne Works, Richmond, Ind., consists of three models—J-1, J-2, and J-3—all of which have the same chassis construction with a few minor exceptions, such as length of wheelbase, size of tires and motor. Model J-1, a runabout with a detachable rumble seat, has an 88-inch wheelbase, 3-inch tires, and a motor rated at 22.5-horsepower. Model J-2, a runabout with a double seat in the rear, has a 96-inch wheelbase, 3½-inch tires, and a 22.5-horsepower motor. Model J-3, a light touring car with baby tonneau, has 102-inch wheelbase, 3½-inch tires, and a motor rated at 25.6-horsepower. The motors in these cars are all of the same L type, four cylinders, vertical, air-cooled, with integrally-cast heads, valve chambers and cooling flanges. Valves are all mechanically operated from one camshaft. The intake valves are located in the top of the valve chamber, and are operated by means of rocker arms, and the exhaust valves, located in the bottom of the valve chamber, are operated direct from the lifters below.

Ricketts.—The Ricketts Automobile Works, South Bend, Ind., are manufacturing three models on a standard chassis. These cars are fitted with baby tonneau, five-passenger touring, and three-passenger roadster bodies. The prominent features of this chassis are the unit power plant with its three-point suspension, six-cylinder, water-cooled, valves-in-the-head motor, multiple-disk clutch, selective gearset, propeller shaft with one universal joint enclosed in a torsion tube, the straight-line drive, and the floating-type rear axle. The cylinders of this motor are cast in pairs and the valves are all operated from one camshaft contained within the crankcase. The flywheel is located in front of the motor and the gearbox is bolted on to the rear end of the crankcase. At the front of the motor between the flywheel and the crankcase is a transverse shaft, driving the water pump on one end and the U. & H. magneto on the other. The timing gears at the forward end are contained in the crankcase proper. At the rear end the gearset is designed with the mainshaft above the countershaft and the multiple-disk clutch is carried within the gearbox housing. The clutch and brake pedals are attached directly to the gearbox housing. Double ignition is used with two sets of plugs, dry cells, Heine coil and magneto. Lubrication is self-contained with a gear-driven double-gear pump to circulate the oil.

Rider-Lewis.—Three models, all built on a standard chassis with a six-cylinder water-cooled motor, comprises the 1909 line of the Rider-Lewis Motor Car Co., Muncie, Ind. These cars are equipped with five and seven-passenger touring, four-passenger toy tonneau, or two and three-passenger roadster bodies. Although they are designed along the lines of conventional construction, they have a number of distinguishing features, the most striking of which is the design of the motor. The cylinders are separately cast with integral spherical-shaped water jackets; the valves are contained in cages in the heads, a little to the right and left of the center, and are operated by means of rocker arms from an overhead camshaft centrally located along the tops of the cylinders. This camshaft is driven by means of double gears and a vertical shaft in front of the motor, the cams and rocker arms being protected by an aluminum housing. The crankcase is of one-piece construction into which the crankshaft is assembled endwise, and closed in by end plates.

Staver High-Wheeler.—The Staver Carriage Company, Chicago, is marketing one model of motor buggy for 1909. It is of the three-passenger roadster type with a four-cylinder motor rated at 22 horsepower, multiple-disk clutch, a sliding-gear transmission, 92-inch wheelbase, and 38-inch wheels equipped with 2-inch solid tires. These cylinders are cast separately with integral heads, valve chambers and water jackets; valves are on opposite sides and are operated through pushrods. The crankcase is of aluminum and of two-part construction, supporting the crankshaft in the upper half, the lower portion forming the reservoir for the self-contained oiling system, the oil circulation being maintained by means of a gear-driven, gear pump. The thermosiphon cooling system is used in connection with a honeycomb

radiator; and ignition is jump spark with storage battery, and Bosch high-tension magneto as extra equipment. The sliding gear transmission is located on the rear axle and equipped with ball bearings.

Owen Thomas.—The Owen Thomas Six, manufactured by the Owen Thomas Company, Janesville, Wis., makes its first appearance in the field of high-class automobile competition this year. After 2 years of trying out parts, making jigs, tools, templates and gauges to produce interchangeable parts in quantities, the Owen Thomas company is now offering one type of chassis equipped with either seven-passenger touring, five-passenger roadster, or two or three-passenger runabout bodies. The power units are all the same and include all operating levers, pedals, etc., independent of body or frame; the variation in wheelbase affecting only the length of the torsion tube and drive shaft. The engine and transmission form a unit power plant all working parts of which are encased, run in oil and are supported on three points. By loosening a few nuts, the body with the rear axle and torsion tube can be wheeled back, leaving the power plant on the front axle and all parts of the engine and transmission accessible.

The crankshaft is a patented construction, cut from a solid billet of hammer-forged oil-tempered Vanadium steel with ground bearings. Instead of the ordinary crank arms, hollow disks are used between the crank pins; these disks are a little larger in diameter than the outside of the pins. The crankcase being of one-piece construction, is bored out so that the crankshaft with its bearings can be inserted through the rear of the case. The transmission case is bolted to a flange on the engine case to form the unit power plant. On the front end of the crankshaft is bolted a spiral gear from which the valves, generator, oil pump, fan and fuel pumps are driven. All gears used in the motor are of the spiral type. Rotary valves are used doing away with all springs, cams, pushrods, etc. One valve is placed in the head of each cylinder supported on ball-bearings.

A direct-current generator of special design is driven from the forward end of the crankshaft and supplies current for the ignition and lighting systems, besides keeping the storage batteries full charged. The batteries are also used in starting the engine. No distributor or timer is used in the ignition system, both of these functions being performed in supplying fuel by direct injection into the cylinders. For exterior cooling, a cast aluminum fan forces air against the outside of the cylinders. The clutch is of the expanding ring type and runs in oil, the ring being of bronze and expanding into the rim of the flywheel.

Zimmerman.—The Zimmerman Mfg. Co., Auburn, Ind., has four models for 1909, one of which, Model G, a motor buggy type, has a double disk friction transmission and the other three, Models H, I and K, runabout, surrey and three-passenger roadster, are all fitted with planetary transmissions. The motors on these buggies are all of the same mechanical construction, but differ in dimensions and horsepower. All are air-cooled with two opposed cylinders of the L-type, which are offset and bolted to the cast-iron crankcase. The valve chambers and cooling fins are integrally cast and the valves, which are contained in detachable cages, are operated by pushrods from a single camshaft contained in the upper portion of the crankcase. This upper portion is removable with the pushrods and camshaft intact. The crankshaft and connecting rods are steel forgings and fitted with bronze bearings of extra length. Lubrication is by means of a mechanical oiler; ignition is jump spark with vibrating coil on the dash and dry cells. The carburetor is of the float feed type and a ball-bearing roller-type commutator is used. The large fan flywheel materially assists in the cooling. The frame is of angle steel; and whereas the springs on Model G are of the full elliptic type, two in number, those of the other models are of the three-quarter scroll type, four in number, and attached to each corner of the frame. The brakes are of the expanding type on the rear wheels and operated by pedal.



TREND IN TRANSMISSION PRACTICE

By Thos. J. Fay

IN the automobile's early days steam was generously used, and steam engines are so flexible as not to require a transmission gearset. In steam motors it is easy to reverse the direction of motion, and as a result the early designers of automobiles did not contemplate the use of a transmission gearset as it will be found in automobiles of the present day.

When the internal combustion gasoline motor came into vogue it was soon found that to reverse motion was to labor under disadvantages in divers ways. Power would be lost owing to the inferior timing relation which must follow if the camshaft was designed to suit reversing conditions. Unless certain complications were introduced into the valve action, and since, in any case, it would be necessary to add to the flexibility of the motor by the use of gearsets, it would seem unnecessary to add to the valve motion anything by way of complicated devices, since an addition to the gearset would be less complicated and the end would be adequately served.

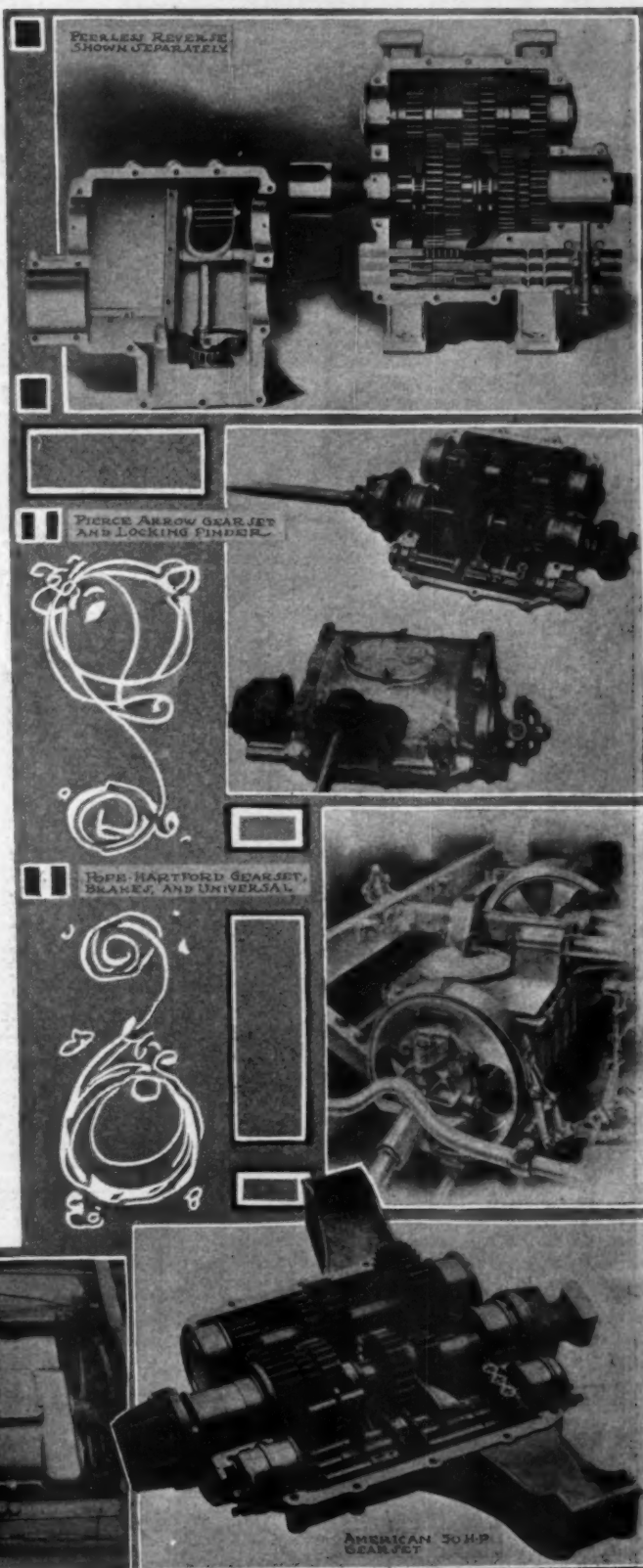
The present status of the devices utilized in connection with motors as used in automobiles for the purpose of obtaining the best results came as the product of much "cut and try," following many failures of methods which seemed to be right, in the absence of experience. Of course many old ideas had to be abandoned. True, the theory of "machines" still holds, and it was the lack of proper application of the theory which led to the earlier failures, or indifferent successes.

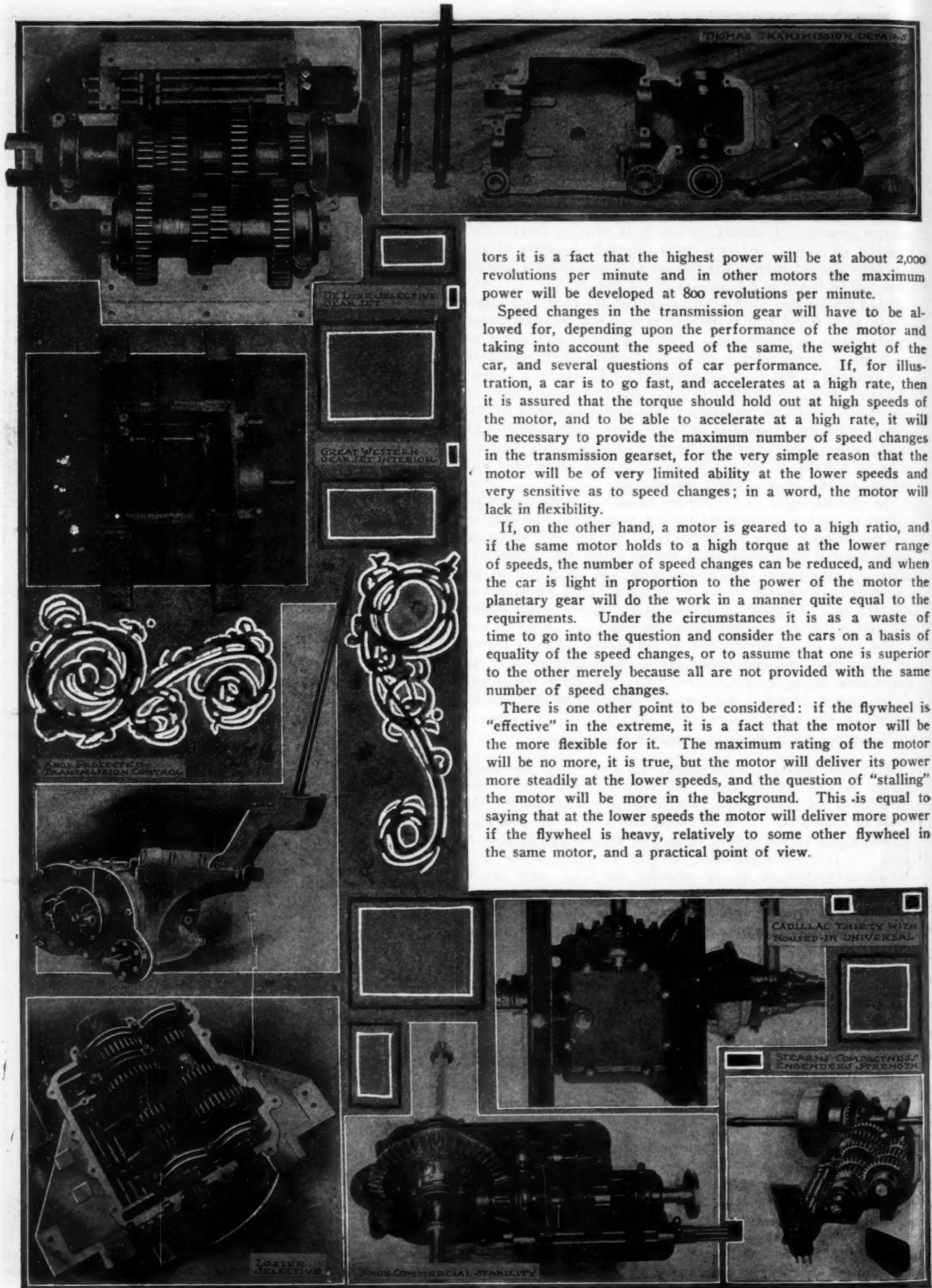
The ideas of the present are in full accord with the theory of "machines," and the results are so thoroughly good as to leave little to be desired. That there are many things yet to be done is conceded, but they are advances as the zone of activity of the industry broadens.

Some Basic Considerations of Transmissions.

If motors could be so designed as to afford an increasing torque with decreasing speed, and certain relations of torque considering speed, all would be well, and the transmission gear could be eliminated. As it is, taking into account the power of motors at the several speeds, nothing of the sort can be considered. It is a well-established fact that cars take power in a certain proportion up to say 20 miles per hour; after which speed the wind resistance begins to be a factor, and from that point on the power must be increased in accordance with the effect of the wind resistance, which becomes the dominant factor. At very low speeds torque becomes of the greatest importance, as for illustration, if a car is plowing its way through sand, necessarily slowly, it is low speed and high torque that are wanted.

Taking the motor performance alone, it is to note that the torque falls off as the speed decreases below a certain point, and the torque also decreases as the speed increases above a certain point. In a word, the torque of a motor is not in conformity with the requirements of the car, either at the low or the high speed. This is not to say that all motors perform in a like manner in this respect. Some motors will deliver power at higher speeds than will others, due to the shape of the torque curve—which can be influenced by the design—to a very considerable extent. In some mo-



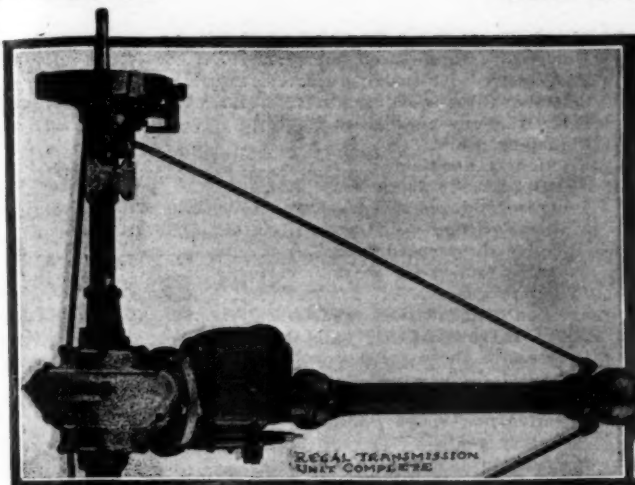


tors it is a fact that the highest power will be at about 2,000 revolutions per minute and in other motors the maximum power will be developed at 800 revolutions per minute.

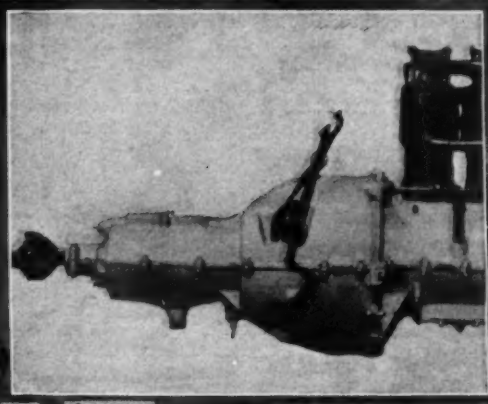
Speed changes in the transmission gear will have to be allowed for, depending upon the performance of the motor and taking into account the speed of the same, the weight of the car, and several questions of car performance. If, for illustration, a car is to go fast, and accelerates at a high rate, then it is assured that the torque should hold out at high speeds of the motor, and to be able to accelerate at a high rate, it will be necessary to provide the maximum number of speed changes in the transmission gearset, for the very simple reason that the motor will be of very limited ability at the lower speeds and very sensitive as to speed changes; in a word, the motor will lack in flexibility.

If, on the other hand, a motor is geared to a high ratio, and if the same motor holds to a high torque at the lower range of speeds, the number of speed changes can be reduced, and when the car is light in proportion to the power of the motor the planetary gear will do the work in a manner quite equal to the requirements. Under the circumstances it is as a waste of time to go into the question and consider the cars on a basis of equality of the speed changes, or to assume that one is superior to the other merely because all are not provided with the same number of speed changes.

There is one other point to be considered: if the flywheel is "effective" in the extreme, it is a fact that the motor will be the more flexible for it. The maximum rating of the motor will be no more, it is true, but the motor will deliver its power more steadily at the lower speeds, and the question of "stalling" the motor will be more in the background. This is equal to saying that at the lower speeds the motor will deliver more power if the flywheel is heavy, relatively to some other flywheel in the same motor, and a practical point of view.



REGAL TRANSMISSION UNIT COMPLETE



AUTOCAR SELF-CONTAINED UNIT



Autoists are prone to question the ratings of motors (from the point of view of the maximum rating) if they find that some motors are rated higher than others, considering the same bore and stroke. This is not a question that they generally handle in a manner to accord with the true facts. In the first place, if a motor is designed to deliver its maximum power at a very high speed, it is plain that some other motors designed to deliver its maximum power at a far lower speed (if both motors are of the same bore and stroke) will be a motor of lower power.

Why the differences? Why not have all the motors designed to deliver the maximum possible power? Why, because it would be the height of folly. Take, for illustration, motors in the racing car types; put the same motors in a truck; what possible chance would the truck have of sustaining a good reputation? None; the misfit would be only too evident, and the only way the motor could be made to work would be through the use of a gearset of many speed changes.

Possibly, the reader will say, if this is an article in relation to transmission gears, why not confine it to them? It will scarcely be necessary to say that it is being confined to the subject, on the ground that the transmission gearset is as an accessory to the motor, an interpreter of the same, in the interest of the chassis. Without the motor it would be unnecessary to have the transmission, whereas with the motor it is possible to get some work out of the balance of the combination minus the transmission gearset.

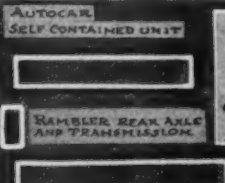
No discussion of the questions involving the transmission gearset can be of the slightest value if it is divorced from the motor. It is the lack of ability of the motor that ends in the use of a transmission gearset, and the real question is, How can the motor be devised to do without the transmission gear, or how can the motor be made the more efficient for the purpose, or why are the transmissions at variance with each other? That they are at variance with each other is a fact that is too apparent to require even the merest statement, and that the reasons are good is also a fact that will easily float to the top at the behest of but the slightest investigation.

Departing from what might be termed vague admissions of fact, and insinuations of terms of the natural limitations, let it be said that something more tangible will whet the interest.

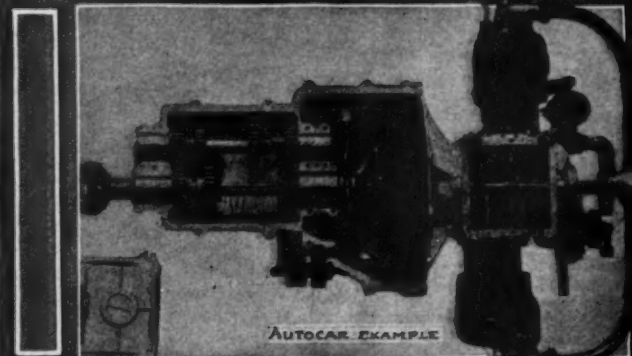
By way of further light on the several phases of the subject, let the cars of the year be counted, and by so doing, ascertain the facts, from the point of view of the transmissions actually used in them. In this manner it will be possible to note if the trend is in accord with what would seem to be the requirements. The following is a very close count of (transmission gear) noses:

CARS COSTING LESS THAN \$1,000 (A.L.A.M.).

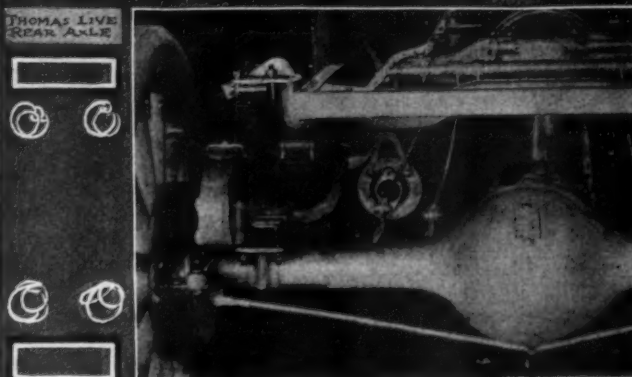
Progressive three-speed gears.....	0
Progressive four-speed gears.....	0
Selective three-speed gears.....	0
Selective four-speed gears.....	0
Planetary gears	1
Friction transmission	1



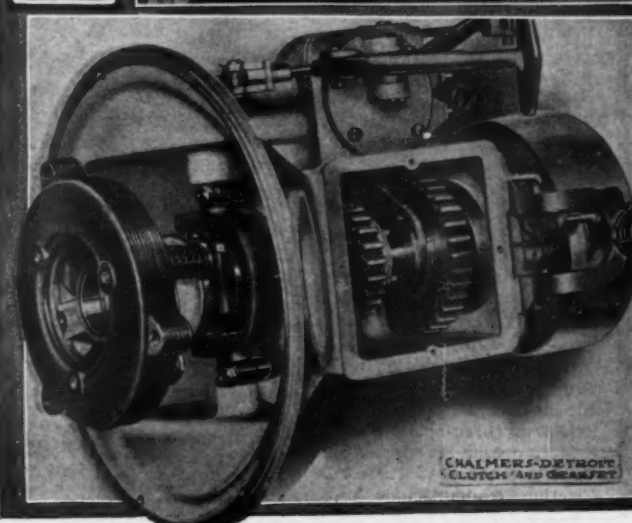
RAMBLER REAR AXLE AND TRANSMISSION



AUTOCAR EXAMPLE



THOMAS LIVE REAR AXLE



CHALMERS-DETROIT CLUTCH AND GEARSET

COSTING FROM \$1,000 TO \$2,000 (A.L.A.M.).

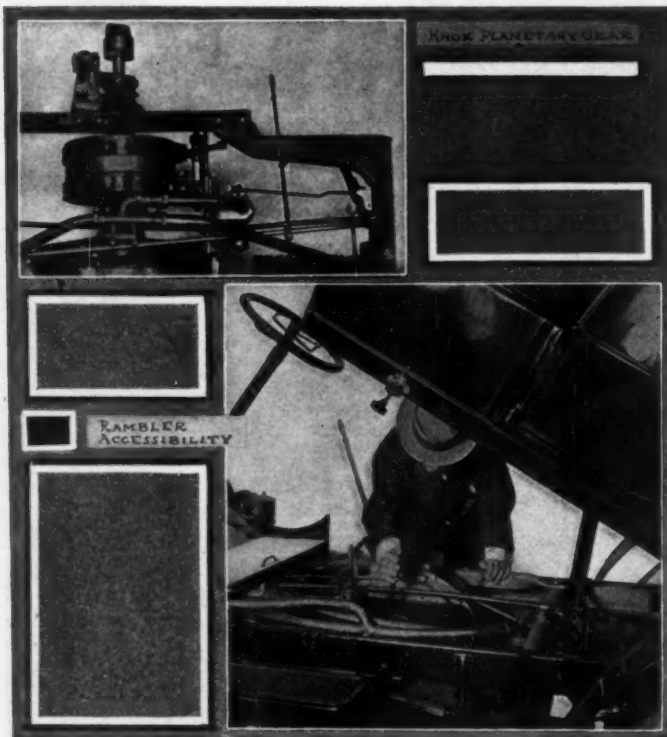
Progressive three-speed gears.....	1
Progressive four-speed gears.....	0
Selective three-speed gears.....	13
Selective four-speed gears.....	0
Planetary gears.....	0
Friction transmissions.....	0

COSTING FROM \$2,000 TO \$3,000 (A.L.A.M.).

Progressive three-speed gears.....	2
Progressive four-speed gears.....	0
Selective three-speed gears.....	26
Selective four-speed gears.....	1
Planetary gears.....	0
Friction transmissions.....	0

COSTING FROM \$3,000 TO \$4,000 (A.L.A.M.).

Progressive three-speed gears.....	8
Progressive four-speed gears.....	0
Selective three-speed gears.....	8
Selective four-speed gears.....	11



Planetary gears.....	0
Friction transmissions.....	0

COSTING FROM \$4,000 TO \$5,000 (A.L.A.M.).

Progressive three-speed gears.....	2
Progressive four-speed gears.....	3
Selective three-speed gears.....	2
Selective four-speed gears.....	22
Planetary gears.....	0
Friction transmissions.....	0

RECAPITULATION, WITHOUT RESPECT TO PRICE (A.L.A.M.).

Progressive three-speed gears.....	13
Progressive four-speed gears.....	3
Selective three-speed gears.....	59
Selective four-speed gears.....	34
Planetary gears.....	1
Friction transmissions.....	1

CARS COSTING LESS THAN \$1,000 (A.M.C.M.A.).

Progressive three-speed gears.....	1
Progressive four-speed gears.....	0
Selective three-speed gears.....	4
Selective four-speed gears.....	0
Planetary gears.....	16
Friction transmissions.....	5

COSTING FROM \$1,000 TO \$1,500 (A.M.C.M.A.).

Progressive three-speed gears.....	0
Progressive four-speed gears.....	0
Selective three-speed gears.....	20
Selective four-speed gears.....	0
Planetary gears.....	7
Friction transmissions.....	2

COSTING FROM \$1,500 TO \$2,000 (A.M.C.M.A.).

Progressive three-speed gears.....	0
Progressive four-speed gears.....	0
Selective three-speed gears.....	30
Selective four-speed gears.....	0
Planetary gears.....	0
Friction transmissions.....	2

COSTING \$2,000 TO \$3,000 (A.M.C.M.A.).

Progressive three-speed gears.....	1
Progressive four-speed gears.....	0
Selective three-speed gears.....	35
Selective four-speed gears.....	0
Planetary gears.....	0
Friction transmission (gearless).....	2

COSTING \$3,000 TO \$4,000 (A.M.C.M.A.).

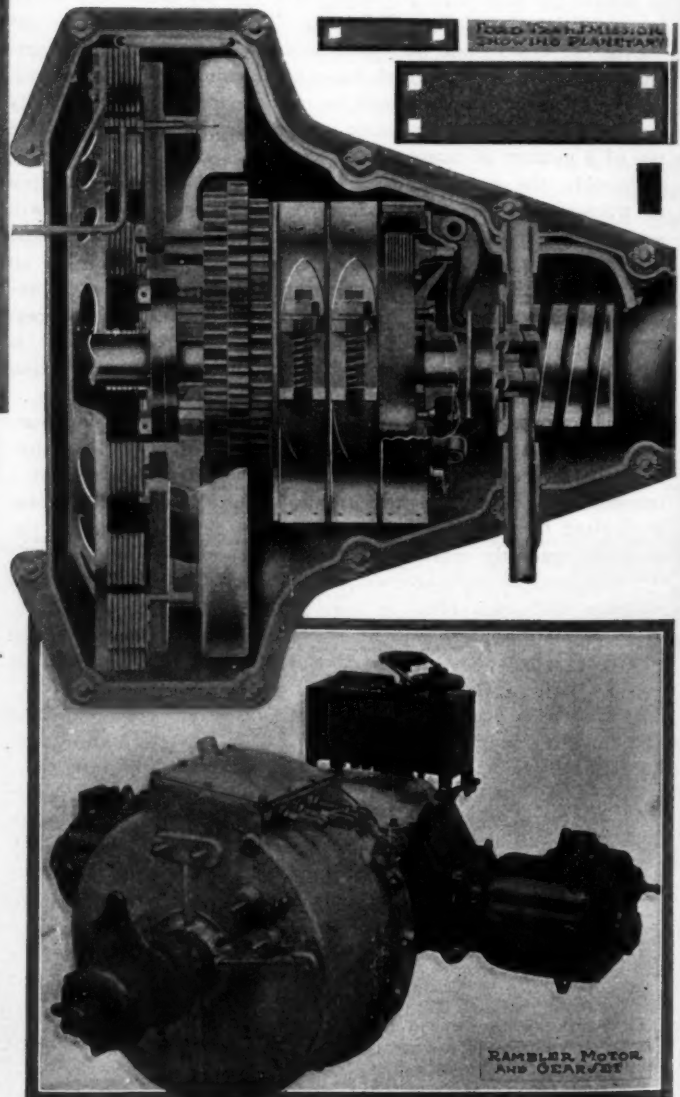
Progressive three-speed gears.....	4
Progressive four-speed gears.....	4
Selective three-speed gears.....	18
Selective four-speed gears.....	5
Planetary gears.....	0
Friction transmission (gearless).....	1

CARS COSTING FROM \$4,000 TO \$5,000 (A.M.C.M.A.).

Progressive three-speed gears.....	1
Progressive four-speed gears.....	0
Selective three-speed gears.....	6
Selective four-speed gears.....	6
Planetary gears.....	0
Friction transmission.....	0

CARS COSTING MORE THAN \$5,000 (A.M.C.M.A.).

Progressive three-speed gears (semi).....	1
Progressive four-speed gears.....	0
Selective three-speed gears.....	5
Selective four-speed gears.....	5
Planetary gears.....	0
Friction transmissions.....	0



The following recapitulation of the cars of the A. M. C. M. A. shows that the three speed selective system has taken a hold of the industry in a way to be called vigorous to say the least. An inspection of the transmission gears as here illustrated will show a very decided compactness, especially in connection with the progressive types, more particularly of the three speed designs, many of which are "direct on high," which is also a strong factor for compactness and stability. This question of rigidity is one which will be better understood when the designs of the gear-spindles are taken into account a little later. Obviously it is an advantage to have the members quite as short as possible, for then the bending moments will induce less flexure, and the dynamic life of the members will be increased.

RECAPITULATION WITHOUT RESPECT TO PRICE (A.M.C.M.A.).

Progressive three-speed gears.....	8
Progressive four-speed gears.....	4
Selective three-speed gears.....	118
Selective four-speed gears.....	16
Planetary gears	0
Friction transmissions	0

Considering all the cars of the makes in the two associations, of which knowledge is available, the situation without respect to price is as follows:

RESUME OF THE STATISTICS OF GEARSETS OF ALL MAKES.

Progressive three-speed gears.....	21
Progressive four-speed gears.....	7
Selective three-speed gears.....	177
Selective four-speed gears.....	50
Planetary gears	24
Friction transmissions	13

Considering some 292 automobiles, the approximate percentage situation is as follows:

Progressive three-speed gears.....	9.2 + per cent.
Progressive four-speed gears.....	2.4 — per cent.
Selective three-speed gears.....	60.6 + per cent.
Selective four-speed gears.....	17.1 + per cent.
Planetary gears	8.2 + per cent.
Friction transmissions	4.4 — per cent.

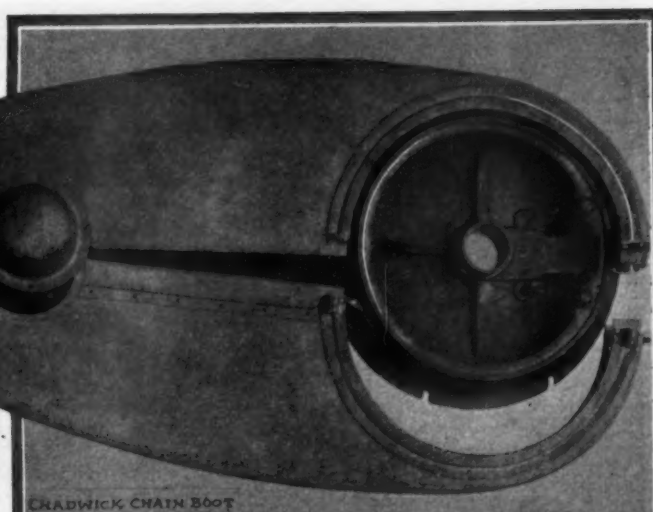
Comment in relation to the percentages of the respective classes of transmissions in actual use is as a waste of time, but it will be worth saying that there has been a decided shift, in that the time was when progressive four-speed gears predominated. In view of the fact that these transmission gearsets took up much room, and weighed overmuch, they have been eliminated in many cases, despite the fact that there are properties in the progressive system that made many friends. As it is, the chances are that the several systems have been reduced to good practice, taking into account the point of view, which is everything in automobile work.

In the progressive system it is true that less skill is required when it comes to accelerating a car, since it is necessary to throw in the low gear first and progress to the high gear. This is at the expense of a little time, and the motor is enabled to pick up. If, on the other hand, it is the selective system that is used, the operator can be mistaken as to the gear to use, unless selections are made in regular increments, from the low gear to the high, without skipping any available gear.

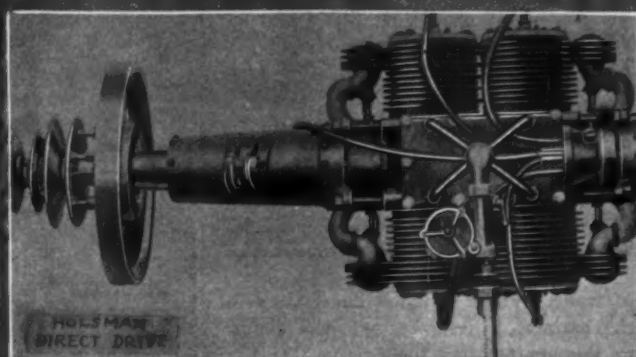
Since it is but a matter of a little skill to be able to select the most suitable gear ratio in any case, many of the experienced drivers take kindly to the selective system. The only way by which the question becomes annoying is when an autoist who has been using one of the systems finds himself in possession of a car equipped in the other way. It naturally will take a little time to get used to the change.

Materials Suitable for Use in Transmission Gears.

This is a branch of the work which must receive the most careful attention if it is to be attended with notable results. A fairly detailed discussion of this phase of the subject may be in order in view of the general advances made in connection with the automobiles for the year, rather with the idea of show-



CRADWICK CHAIN BOOT



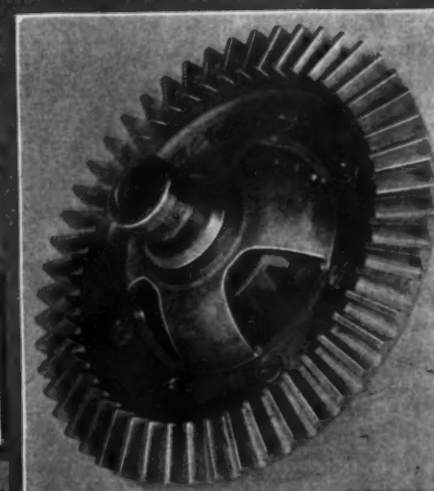
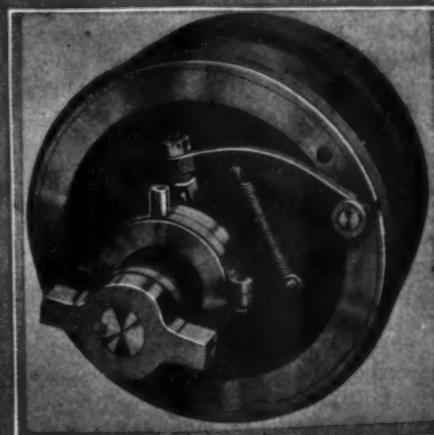
HOLSMAN DIRECT DRIVE



GEARLESS DRIVE ASSEMBLED

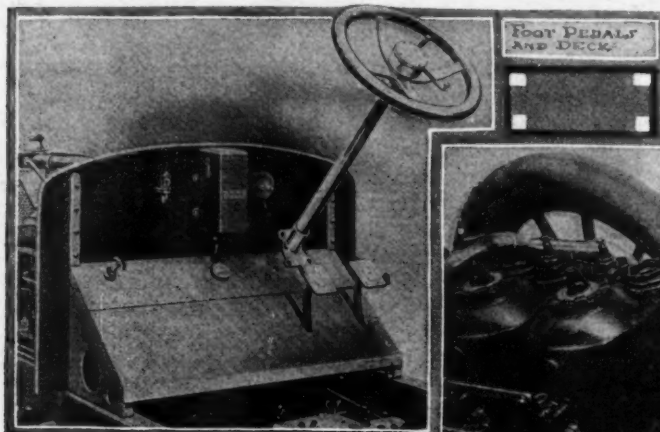


CLEVELAND DIFFERENTIAL



ing the extent of the advances, with the further notion of affording information to those who may need it, and that buyers of cars will really be able to see why the question of the relative cost is not one which can show on the surface. The other side of the question is one in which it is intended to show that the cost of the material is not to be the sole criterion.

That the quality of the material to use must be disposed of before the design is fixed upon, is assured; it would be as a waste of time to lay out a structure on a basis of the use of steel and then substitute lead for the steel; and yet there is fully this difference between the superior grades of steel as used in gears and the ordinary run of steel as it is offered in the marts



of trade. There is much uncertainty in the haunts of designers when it comes to this matter, for the reason that the vendors of steel have opinions in relation to quality which are so flexible as to stretch in all directions, depending upon the information disclosed by the "stock sheet."

The illustrations afforded with this article will adequately disclose the great uniformity which obtains in practice when reference is had to the gear dimensions; there is a great uniformity; it is to be expected, for reasons as follows:

- (a) The gear ratios are very much the same in the several makes of cars of the respective classes;
- (b) Motors are very close together in point of power in the several makes of cars of the same class;
- (c) Road conditions are equal for all the makes of cars;
- (d) The duties of the gearsets, in the several makes of cars of a common class, do not differ from each other to any great extent.

Since the conditions are very closely approximated in the various cars of the several classes, it is a fair assumption that the gears will have to do about the same amount of work, and it is the "factor of safety" which will be altered if the materials are not the same, assuming gears of precisely the same design. True, it is possible to introduce many variations, and in point of detail, many are the variations in actual practice. Equally true, there are limitations to all, limitations, in fact, which, if not taken into account, will terminate the performance in disaster in the cases which do not conform to the torque requirements.

Special Grades of Carbon Are Used.

The materials used in gears may be classed in the manner as follows, as they are used in cars of the present time:

- (a) Mild carbon steel of the acid open-hearth genera;
- (b) Mild carbon steel of the basic open-hearth genera;
- (c) Mild carbon steel of the Bessemer genera;
- (d) Mild carbon steel of the crucible genera.

In the above grades of steel the carbon is kept below the point

PROPERTIES OF CARBON STEEL OF VARIOUS COMPOSITIONS.

Composition (acid open-hearth steel).

Number.	Carbon.	Silicon.	Sulphur.	Phosphorus.	Manganese.
1.....	0.132	0.026	0.031	0.055	0.400
2.....	0.183	0.037	0.024	0.052	0.710
3.....	0.311	0.040	0.021	0.052	0.575
4.....	0.370	0.062	0.021	0.029	0.800

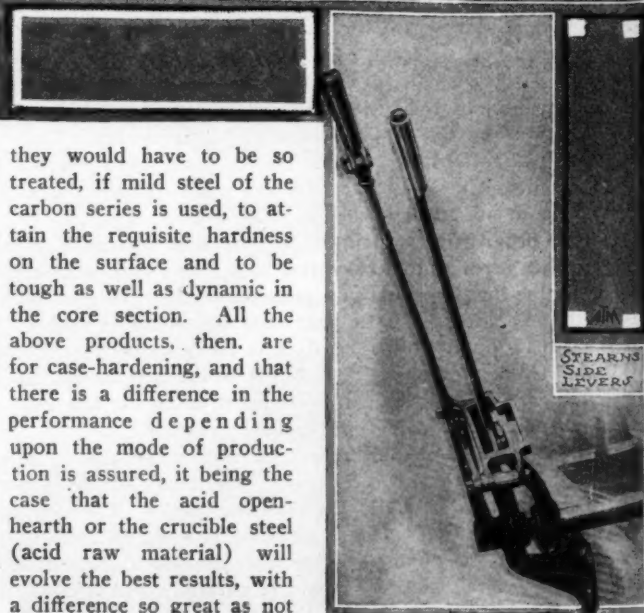
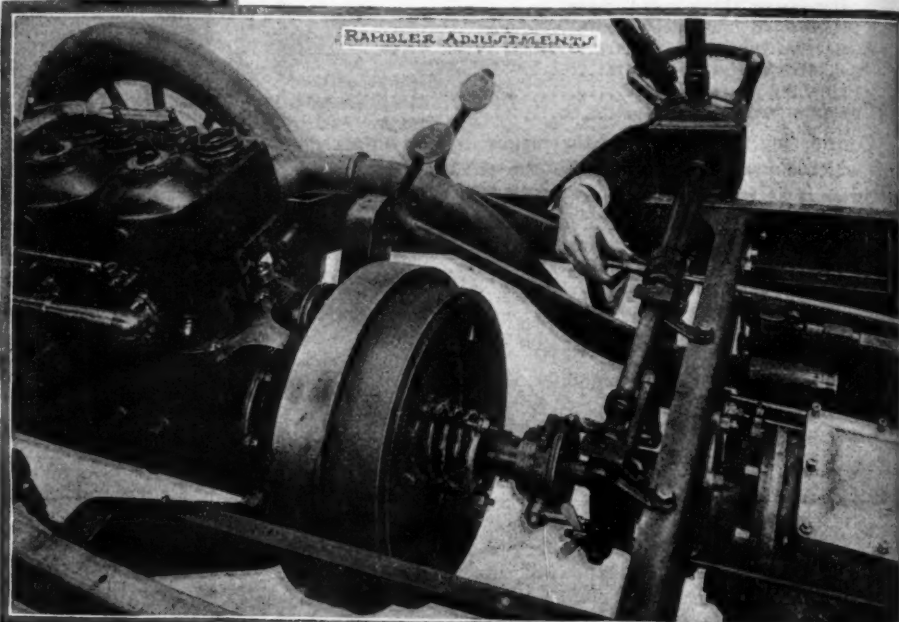
PHYSICAL PROPERTIES.

(Heated to 610 deg. Centigrade and cooled in air.)

Number.	Tensile Strength Tons per Sq. In.	Elastic Limit Tons per Sq. In.	Elongation Per Cent. in 6 Inches.	Reduction of Area in Per Cent.	Brinell Hardness Number.
1.....	25.35	12.33	30.60	62.65	78.1
2.....	30.20	15.58	27.70	60.70	96.1
3.....	33.09	13.96	24.10	55.32	102.0
4.....	35.63	17.53	22.03	52.82	111.0

(Report of W. F. Harbord, Feb. 20, '08. Paper read before the Institute Mechanical Engineers.)

at which quenching from above 900 degrees centigrade will cause any noticeable hardness. The limit is 20 points of carbon, and it is generally conceded that 16 points of carbon should be the maximum if the gears are to be "cemented" (case-hardened);



they would have to be so treated, if mild steel of the carbon series is used, to attain the requisite hardness on the surface and to be tough as well as dynamic in the core section. All the above products, then, are for case-hardening, and that there is a difference in the performance depending upon the mode of production is assured, it being the case that the acid open-hearth or the crucible steel (acid raw material) will evolve the best results, with a difference so great as not to be neglected if the performance is to be noteworthy.

There is no other grade of carbon steel suitable for use in gears if "cementing" is to be resorted to excepting that the remaining contents can be varied over considerable ranges, and the "heat treatment" can be conducted in divers ways.

(To be continued.)

Quakerville Has a Good Show

By
GM Schell

PHILADELPHIA, Feb. 3.—To-night the Philadelphia show closed with a most satisfactory accounting all around. The attendance has been excellent, interest has been plainly apparent, and sales have followed as a natural sequence. There is no doubt but that the exhibition has been of great material benefit to the industry in this city, and the general impression prevails that a Winter show is still an asset worth the trouble and expense for several years to come.

Made up of 66 separate exhibits—of which 42 are of automobiles, 4 of motorcycles and 20 of accessories—the show was really the most comprehensive ever held in Philadelphia. Fifty-two of the better-known American and foreign cars were crowded under the armory roof, the actual number of cars on exhibition being 154.

The color scheme was a daring departure from the tenets of the "quiet and dignified"—nothing less than Nile green and pink, if you please. But perhaps that combination isn't a winner! It gave the big armory the effect of the interior of a huge square tent, the central roof feature being a huge staff device dotted with myriads of electric globes, with long strings of lamps carried therefrom to every side and corner of the armory, while immediately above were looped alternate strips of Nile green and cerise material, so closely draped as to entirely hide from view the unsightly girders of the roof. These strips were carried from above the huge central electric device to the far sides and ends of the building, giving the tent effect spoken of. Opposite the main entrance debouched into the main aisle, which was lined on each side (placed at booth intersections) with staff columns in Byzantine period effect, each opposite pair connected by a graceful lattice work arch entwined with beautiful artificial flowers. This lattice work effect was repeated around the sides of the entire armory, giving a general effect, which, while decidedly effective, was not garish.

Kendle's string band, perched on a hanging balcony at the far end of the armory, could be heard but not seen, being ensconced in a veritable floral-electric bower. Manager Beck came in for unlimited compliments on the decorative scheme—even the exhibitors and visitors on business bent being forced to admit the compelling effect of beautiful surroundings in a venture where the great desideratum in the final analysis is the almighty dollar.

While it had been the original intention, owing to the lack of space, to limit the exhibits to automobiles and accessories, the pleas of the motorcycle makers became so insistent that at the eleventh hour Manager Beck decided to secure one of the large main-floor company rooms to accommodate them. Here, to the right of the main entrance, was the "Motorcycle Annex," and four rivals for the "two-wheeler" business hold forth here with fifteen machines of various power and price. They were the Reading, Standard, Thor, Marsh-Metz and N. S. U.

The lack of the exhibition room was impressed upon the visitor from the moment he entered by the crowding into the corridor at the left of the entrance of a single specimen—but a most beautiful one—of the handiwork of the Woods Motor Vehicle Company, of Chicago. It was a coupé fitted up with every luxury and convenience, and on McKinley's birthday it was fairly smothered in pink carnations. Despite the uptown location of the armory and the distance from the hotel, wholesale and automobile districts in the center of the city, the show exceeded by 50 per cent. all previous attendance records for similar exhibitions held in this city. Manager Beck figured out on Saturday night, the fourth of

the show, average daily admissions of nearly 8,500, which, in view of the narrow aisles—necessitated by the clamorous demands for space and more space—made uncomfortable crowding a nightly occurrence. Indeed, even the afternoon crowds were so comparatively dense as to



push the overflow into the various stands and interfere somewhat with the conversation artists connected with the various displays getting in their best licks. However, the real business of the mornings and early afternoons more than compensated for the evening discomforts, and there were few dissatisfied exhibitors. All hands know the handicap under which Philadelphia show promoters have long labored, and "if we only had a Madison Square Garden here" was often heard from visitor and exhibitor alike.

Like all modern automobile shows, real novelties were conspicuous by their absence. But there was "something new" at the Philadelphia show, whether it is practical or not. It is the Carroll carbonic acid gas car. Mounted on a runabout frame of about the 1905 vintage, the little engine for which the inventor claims 31 horsepower, looked insignificant indeed. The utter simplicity of the engine is accentuated by the absence of radiator, carbureter, sparking devices, and all the other necessities which go to make up a complete gasoline car chassis. And yet, Mr. Carroll claims he has harnessed C O₂ until it will do his will. A peculiar feature of the Carroll exhibit was that there was no "conversation corps" to dilate on the merits of the invention—and Lord knows one was needed, despite the fact that a neat little booklet was handed out at the stand which answers possibly a third of the questions asked concerning it! No attempt was made to secure purchasers or subscribers to stock. The exhibit stood there for the crowds to look at, feel of—smell, if they cared to—and that was all there was to it. That it "goes," hundreds of Philadelphians are willing to swear. What makes it go they are not so sure of. Perhaps this show has launched a revolutionizer. *Quien sabe?*

Every exhibitor whose product has captured trophies on track or road had his plunder displayed prominently. The Fiat had its \$5,000 Savannah Grand Prize cup. At the Matheson stand proudly among other trophies reposed the \$600 MacDonald & Campbell cup, captured on the heart-breaking Wilkes-Barre run of the Quaker City Motor Club. The Acme exhibit's main feature in the prize line was its second place in the Fairmount Park Founders' Week race, the Locomobile crowd going them several better, with the cups symbolical of first place in the same contest and its still greater win in the Vanderbilt race. A veritable forest of small cups crowned the Pullman exhibit; a similar display being a marked feature also of the Stanley exhibit—and so on. The little "Lampo" was the star card at the Lancia booth, the triumph of Hilliard at Savannah having been supplemented only recently by Mrs. Cuneo's win in the same little car on the run of the Women's Motor Club, of New York, from the metropolis to this city and return. The dust and mud-begrimed transcontinental Brush was also in evidence, the car being carefully watched in order that none of the apparently precious grime of travel should be accidentally removed.

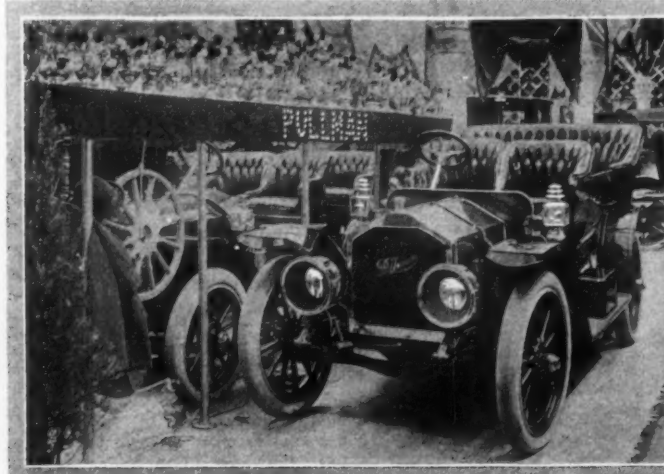
The show early promised to be as successful as a business proposition as it was pleasing to the eye. Not in the sense that

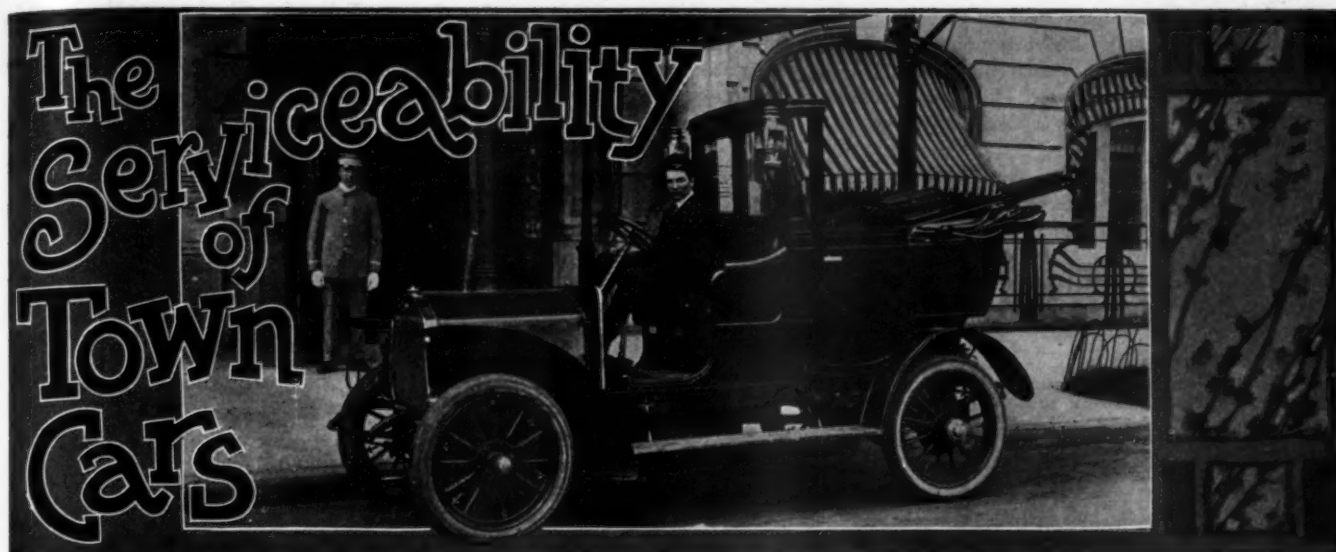
it proved a money-maker for the promoters—for that was a foregone conclusion before the doors were opened last Wednesday night—but that exhibitors as a rule found their expenditures for space and the extras well worth while. Possibly the biggest bit of business done was the closing of a deal between the Autocar Company and the Pennsylvania Taxicab Company, whereby the former will furnish 25 vehicles for the latter for use in this city. Wayne Davis "sneaked one over" on his fellows when, fifteen minutes after 8 o'clock on Wednesday night, he recorded the first actual sale of the show—a replica of the Matheson, which won the Philadelphia-Wilkes-Barre endurance of the Quaker City Motor Club. After that sales were numerous reported, scarcely a single exhibitor being overlooked.

Every day saw an influx of national automobile celebrities; it would have been impossible to shy a brick at random anywhere into the crowd without bringing down a star card. All of the elect, who put in the first days of the week storing up energy after the exhaustion following the Garden show and preparatory to the further demands upon them next week at Chicago, floated into town to tune up a trifle at the expense of the Quakers. Publicity men, sales managers, factory experts and manufacturers—place them in any order you please—were here. Fred L. Estey, in his inimitable interviews with himself, garnered column after column of dollar-a-line space gratis for the E-M-F, the local sheets snapping it up with avidity. Ernest Coler became so warm over some of his cracks that he fell into the trap and helped the game along. Beginning in fun and dealing at first in generalities, Estey brought around his ears a bunch of competitors with defies in their pockets, blood in their eyes and chips on their shoulders—and laughingly skipped the town. E. L. Thomas, Harry Fosdick, "Dunc" Curry, C. S. Jamison, W. C. Churchill, H. B. Larzalere, R. H. Johnston, Lee Counselman, E. P. Nussbaum, W. H. Kirkpatrick, "Major" Humphries, Frank Pearce, George Bennett, "Senator" Morgan and "On-the-Spot" Spooner were just a few of the celebrities who spent the first half of the show in town.

The heavy storm of Tuesday night, previous to the opening of the show, deprived the visitors of the opportunity of witnessing the free-moving picture exhibition, which the management had provided as a side-show to the star attractions in the main tent. A huge tent had been erected on the vacant lot next the armory, but Old Boreas put in his most vicious licks and ripped the tent to pieces. Fortunately, the moving picture machine was not injured, but it was found impossible to secure another tent on such short notice, and this feature was reluctantly abandoned. It was perhaps just as well, for with a blizzard on Saturday night and intensely cold weather during the latter part of the show, it would have been impossible to properly warm the tent. Thus did Dame Nature thwart dire pneumonia.

Despite environs and conditions of inclement weather, Philadelphia has done it, and the "straws" are scattered to the "four winds" of solid business, some of which is in hand.





THE apparent popularity of the town car is a definite measure of its value in the service to which it is dedicated. Of town cars it may be said that a considerable variation in types of bodies, or, better yet, in body designs, will be found. The limousine type of body is largely used in town work, the landaulet is sometimes employed for the purpose, but the brougham type represents comfort and luxury in the extreme.

Of the limousine, and the advantages thereof, roominess is the most pronounced feature. This style of body is preferred by the patrons of the industry whose needs are by way of a spacious body, seating five persons within. In all other respects, the limousine type can be rendered just as comfortable and possess all the elements of luxuriousness possible of attainment in connection with the brougham.

The landaulet, on the other hand, has for its basis an entirely different set of features. With the landaulet, it is possible to take advantage of the clemency of weather by folding back the collapsible top and avoid thereby the cooped-in feeling, so prone to grow upon one if the atmospheric influences favor open-air life. There is no lack of comfortable surroundings or luxuries in connection with the superb designs of landaulet, to be seen at every hand, and in them the seating capacity is not less than in the limousine types, excepting that the auxiliary seat requires the occupants to ride backward, as a rule.

This question of seating capacity is secondary in town cars, for, in all truth, they are not intended to serve in the capacity of a carry-all. Indeed, there is a decided preference, when it comes to the brougham type, in favor of limiting the seating capacity to two persons and no more. In the brougham type of town car, utilized as it is by way of a convenience in social life, there is a distinct disadvantage if the seating capacity does not exceed that which will afford a liberal accommodation for two persons. "Her ladyship" in transit for the opera is not costumed with the idea of being sandwiched in between two persons, nor is it feasible to utilize auxiliary seats, for the reason that the entrance would be obstructed under conditions that are most disagreeable.

The town brougham affords a commodious and luxurious seating space for two persons, which in itself would be of no advantage at all in the absence of a wide entrance, free from obstructions of every character. On this account it is the custom to make the depth of the chauffeur's seat not more than 18 inches at the most; his foot room is reduced to approximately 20 inches, lengthwise of the car, and the preference is for the short motor; again with a view of rendering the space within the maximum possible without bringing the seats of the occupants over the rear axle, which is an advantage in this service.

In the best examples of town cars, the turning radius of the car is taken into account in practically every case. It is desired to be able to maneuver in congested streets, and to make a turning

movement in fairly narrow thoroughfares, without having to back and fill, as it were. In this we see a still further reason for a short wheelbase, which in turn indicates very little room for the chauffeur's seat, the least possible for the motor, and the balance for the body proper, that luxury may repose within.

The wheelbase can scarcely be more than 100 inches, if the turning radius is to be half the width of thoroughfares as they generally do obtain. This in itself would scarcely suffice for the purpose, in the absence of a limited "canting" angle, of the front wheels, and this angle depends not only upon the diameter, but upon the width of the chassis frame in juxtaposition to the front wheels. These are all matters that now receive their quota of attention, while in former times it was considered that a touring car chassis could be fitted out for town car service, hoping to render it fit if perchance the body was a luxurious creation, with room enough in the seating space to dance the minuet.

Not so with the modern creations. They are town cars pure and simple, designed specifically for the purpose, and are limited to town service, since, forsooth, they would be as faulty for touring as is the touring car when converted over. Likewise in the town car there is a penchant in favor of the shaft drive, since by the elimination of the side chains the sprocket-wheel guard will not obstruct the side entrance or take up space on the running board. In the expression of this preference in favor of the shaft drive, there is naught by way of questioning the mechanical ability of chains, nor does this preference indicate a more pronounced condition of stability of the shaft drive. It is a mere case of prejudice upon the part of the patrons who do not care to have the side entrance obstructed in any way.

Town Cars Are Heavy.

Criticisms of weight may be well taken when aimed at light touring cars, or cars in which high speed is a perquisite, but in a town car weight is an essential to that "Pullman" effect so much to be desired. But if weight is a favorable factor (which will, of course, run up the tire account), the weight must be placed where it will do the most good, i. e., as near the ground as possible. "Top hamper" would cause lateral rolling and engender other ill effects, as pitching in the longitudinal plane. The modern town car body, then, is designed with stout under-framing and light, even to frailness, in the over-body. The chassis is also, as a rule, much heavier than would be necessary in a touring car, or other pleasure automobile. The wheels are not of a maximum diameter, and the ground clearance seems to be adequate under the conditions of service of the town cars, and it brings the running board at a nice elevation in relation to the customary stepping stones; which running board, in turn, is well situated with respect to the sill of the side entrance.

In spite of the desire for weight in town cars, they are not

with great power of the motor, because they do not have to negotiate unpaved streets, nor are they noted for high speed. In some town cars, weighing perhaps two gross tons, the power is even down to 16 to 20-horsepower. There seems to be no trouble on this account, while there is a factor in favor of economy in the directions as follows:

- (a) The fuel consumption is remarkably low.
- (b) The tire bills are minimized.
- (c) The upkeep factor, due to shock, is less than it otherwise would be.

These are important matters and properties of the most recent types of town cars realized, without having to consider the absence of any innovation worthy of the name, since the speed attainable is all that can be used in the thoroughfares.

The Accessories of Town Cars.

Headlights are not included with the equipment of town cars, since ethically there is nothing in favor of blinding the pilots of approaching vehicles, merely to cast a glare where none is necessary; the lighting system, then, is complete with side-lights and a tail-lamp, conforming to the legal requirements. When reference is had to the signal system of a town car, a positive but not conspicuously noisy signal, free from trinkets, should be included.

But the occupants of the car will ever find it necessary to indicate to the chauffeur the direction in which to go, how fast to travel, when to start and when to stop. A speaking tube or a telegraph is therefore essential to the equipment, and an annunciator is placed to intercept the line of vision of the chauffeur, which in itself is an electrical device, as a rule, with drops suitably inscribed. Within the body of the best types of town cars will be found a time-piece, and a *secrétaire* with paper, envelopes, and such little trinkets as lend zest to luxury.

The Vagaries in Design.

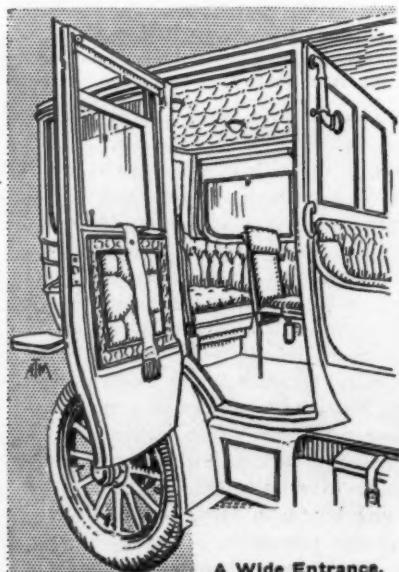
There are no finishes in connection with the carriage makers' craft so pronounced in artistic effect or varied as to detail as will be found in conjunction with the town car. The lines of the body in the best examples are at the hands of artists of no mean repute, and it is not uncommon to see samples of town cars in which the body alone reaches to the comfortable figure of several thousand dollars. Unappreciative persons of no experience, to whom the shadow of a dollar exceeds the purchasing ability of the coin itself, would scarcely see in these marvelous creations any whit of their real worth or the embellishment of true art and stability personified.

It has been so from the beginning in the automobile zone of activity. No sooner did designers sink into a groove than some new and improved plan bounced off the horizon and fell upon

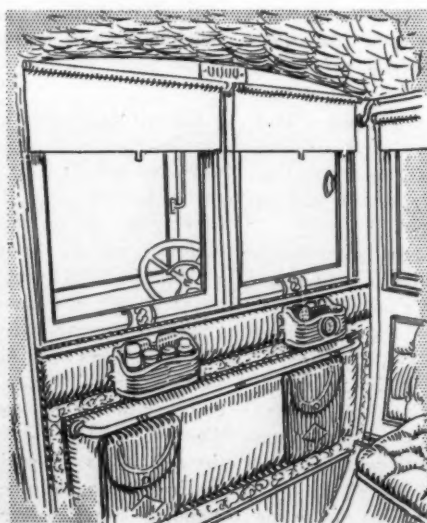
them with convincing force. Take, for illustration, the "taxicab," which in all truth is but a fitting evolution of the town car. It is the town car for the resident and the taxicab for the transient, and nothing short. It will not be out of place, then, to intimate that the taxicab was one of the offshoots of the experiences with town-car work.

Some Influences of Town Service on Cars.—Prior to the introduction of the town car as a type, and for some time thereafter, it was the custom to use the regular stock chassis, the body changing. Murmurs of discontent were soon to be heard, due to the awkwardness of the side entrance, and the fact that the sprocket guard was in the way. The shaft drive car was the solution, by means of which the sprocket guard was eliminated, and the drop frame rendered the distance from the "curb" suitable for the purpose. In relation to the drop frame it is a fact that it did not stop with the "town car," and in the course of events it was found that the idea had value for other reasons than the mere fact that the side entrance of the town car was made more accessible. Predictions that the drop frame would prove weak and valueless for the purpose were as chaff before the wind in the light of even a little experience, for, in all truth, the drop frame proved to be more than equal to the occasion. In other words, this type of frame was found to have a wider range of usefulness, in that it afforded a superior car performance in many cases and in divers ways. With the drop frame it is possible to realize the "straight-line drive," which in itself is a matter of more than a little moment. The universal joints that formerly sustained serious hardships are in a straight-line drive enabled to perform their normal functions without having to transmit under conditions involving an undue angle.

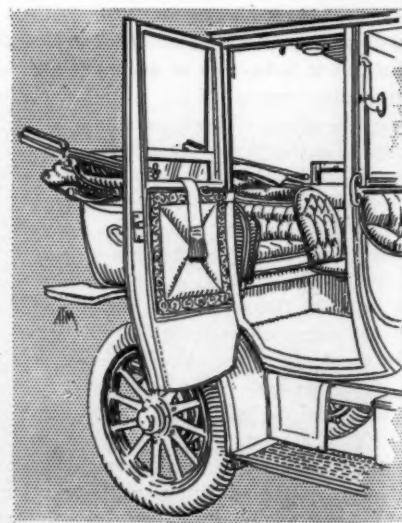
The drop frame has had its influence upon the center of gravity and as a result the car performance under severe road conditions. This is a matter to be viewed in the light of reduced cost of maintenance rather than with the idea of engendering a greater speed. In the matter of appearance it is assured that the drop frame has had a marked effect on cars, nor can it be claimed that the change has been for the worse. The earlier types of cars looked as if something was missing; the drop frame had a lot to do with the discovery of the missing link. In some cases the whole frame is lowered rather than offset the frame, as in drop-frame construction. The practical result is the same in any event, since the center of gravity is lowered and the car performance is very much improved as a direct result. The frames are more substantial than was the case in the earlier days, and the materials used are superior for the purpose. Sag is aborted in some cases by inducing an artificial sag, in the process of manufacture.



A Wide Entrance.



Details Within, Auguring for Comfort.



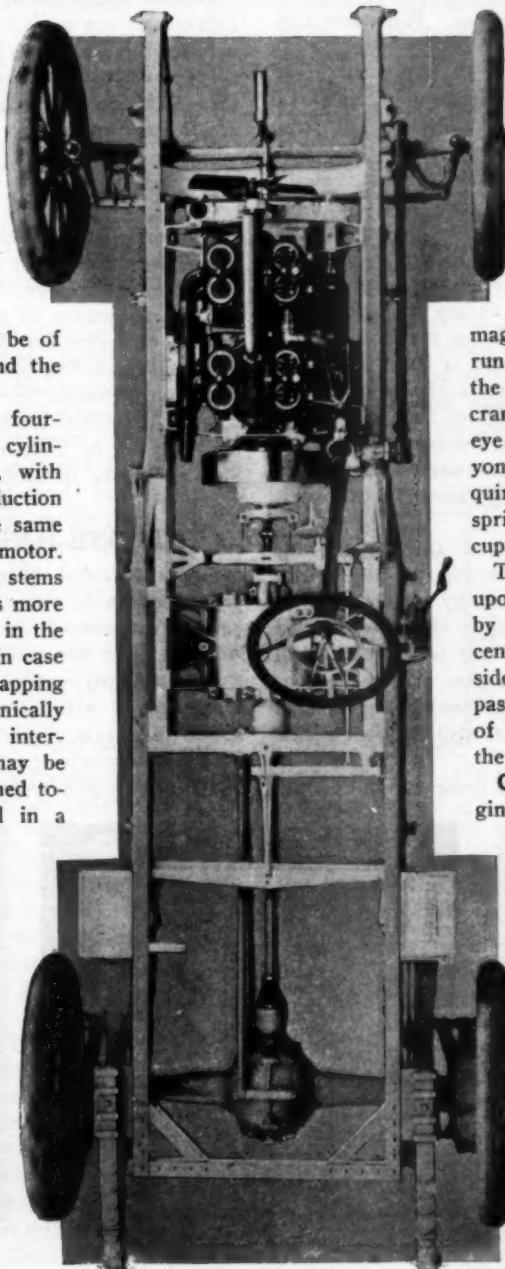
Showing Top of Landaulet Folded Back.



INDIANAPOLIS, Feb. 1. — Clean, straight lines, rounded out with a few well-chosen curves, characterize the 1909 product of the Premier Motor Manufacturing Company. This will consist of two models, a four-cylinder rated at 30 and a "six" nominally called 45. The former, or 30, may be had in four body styles, a single or double-seated roadster, double roadster with doors, touring car and limousine. All body work will be of the now general straight-line design and the material, sheet metal.

Power Plant.—This consists of a four-cylinder unit of exclusive design. The cylinders are of gray iron, cast in pairs, with valves on opposite sides and the induction pipe integral. Bore and stroke are the same at 4 1/2 inches, this being a "square" motor. The nickel-steel valves have both the stems and seats ground to size, which requires more expert workmanship. The valve guides in the cylinders are bushed to allow removal in case of wear rather than necessitating the scrapping of the cylinder. Both valves are mechanically operated, of a liberal diameter and interchangeable. Another feature which may be mentioned is the four piston rings, pinned together in pairs, each pair being used in a single groove. The crankshaft runs on three large bearings of Parsons white bronze, as do also the I-section connecting rods. A new departure of some moment is the use of cast iron for the crank case, aluminum being rejected as not rigid enough for holding the crankshaft and not suitable for thread cutting.

Make-and-Break Ignition. — The mechanical sparking device, so successful in previous years, has been retained. A low-tension Bosch magneto located on the right-hand side is the source of current, being driven through a universally jointed shaft which allows quick removal and replacement.



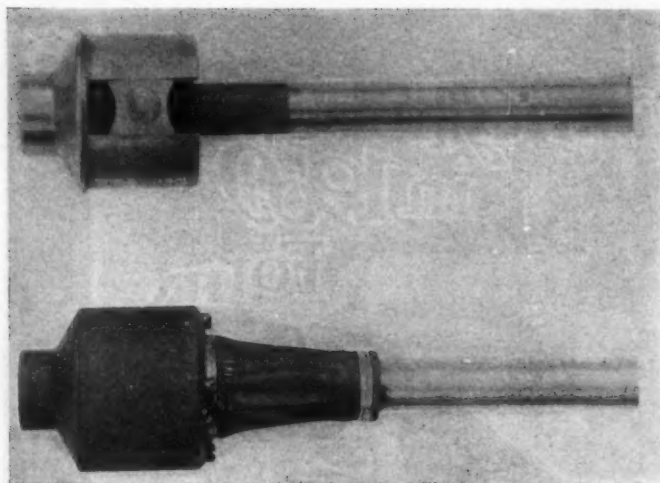
The ignition cams, shown in the view of the cylinder, are driven from spiral gears on the inlet camshaft by means of a vertical shaft, broken by a three-jaw coupling and running on annular ball bearings. A second or auxiliary system is provided consisting of a battery, special single-coil and a high-tension distributor.

The motor is lubricated by a force feed lubricator located opposite to the magneto and gear driven. From there leads run to each cylinder, the main bearings and the gear case, but the lubrication within the crank case is of the splash type, a round bull's-eye in the case indicating the oil level. Beyond the motor itself, all parts of the car requiring lubrication, including springs and spring shackles, have liberal grease or oil cups, accessibly located.

The radiator is of the cellular type mounted upon rubber buffers and fastened to the frame by reinforced brackets. A large gear-driven centrifugal pump, located on the left-hand side of the engine, circulates the water, but all passages are liberally designed with the idea of utilizing thermo-syphon circulation in case the pump fails, to do the work.

Clutch and Transmission.—From the engine, the drive is through a multiple disc clutch of the Weston type to a three-speed and reverse transmission.

This clutch takes hold very gradually and thus avoids severe shocks. Universal coupling is interposed between this and the transmission. The latter operates on the selective principle in an H-segment and has direct drive on the high gear. The gear shafts are hardened, ground, and mounted upon imported annular bearings. The view with the cover removed shows the compactness of this. The drive to the rear axle is by shaft, a pair of Premier combination slip and universal joints taking care of all inequalities. These joints are of very large diameter and



Combination Slip and Universal Joint on Premier.

provision is made for a large amount of longitudinal slip.

The Axles.—The rear axle housing is made of two ball-shaped crucible steel castings, heavily ribbed on the inside, in which it shows a departure from conventional practice. With this construction the use of truss rods is avoided and a very strong combination results. The bearings are all of the annular ball type and the driving is done by means of large diameter three-jaw clutches forged integral with the axle spindle. The front axle is on a line with the front end of the radiator. It is a one-piece drop forging of very deep I-beam section and the material is a very tough special steel. The spring seats are forged integral and machined to size. In the selection of the springs, always a vital point, the greatest care is used. The type is the semi-elliptic front and three-quarter "ell" rear, these being of an unusual grade of spring steel. The leaves are thin, wide and individually lipped, besides which rebound clips are fitted.

The frame is really in two parts, the main or body frame and the sub or power-plant frame. The former is of a pressed steel channel section with very wide top and bottom flanges, and tied together by channel-shaped cross-stiffeners, the sub frame, which extends from the forward cross brace to the rear end and of the transmission, is of an angle section securely riveted to the inside of the main frame.

Brakes.—Not the least important part of any car are the brakes and the braking system. On the Premier 30 these are of two kinds, internal expanding 3 inches wide by 14 7-8 inches in diameter with 44 cork inserts, 11-8 inches in diameter pressed into 3-4-inch holes. This makes a brake that is right and will do the work at all times. The external brakes are of the contracting band type, lined with camel's hair belting and applied through a long pressed steel equalizer, as is also the foot brake. External adjustment is provided on both.

All told, this chassis reflects credit on its designers and should

be as successful as its predecessor. The price of Type 30, with any body, is \$2,500, except the Limousine, which lists at \$3,500. A fitting companion for the "30" is Type 45, which may be had in the same styles of body work. The price of these is \$3,500 up to the Limousine, for which \$4,750 is asked. Thirty-four-inch wheels are regularly fitted on all models, the tires being 31-2 and 4-inch on the runabout, 4-inch all around on touring cars, while on the 45's, 4 and 4 1-2-inch sizes are used.

SOME MICHIGAN AUTO-MAKING STATISTICS.

DETROIT, Feb. 1.—Figures gathered from authoritative sources prove interesting as showing how Detroit and Michigan have forged to the front in the production of automobiles until there is in reality no second. In Detroit alone there are fifteen companies that manufacture automobiles, aside from the parts makers. These fifteen companies will this year turn out 50,000 cars—actual, not press-agent figures. These run all the way from a runabout at \$500 up to seven-passenger cars that sell for \$5,000 or more, according to the tastes of the buyer. Cars ranging from \$1,200 to \$1,500 form a great majority of this number, and with the former figure as an average, it will be seen that the local output will have a sale value of \$60,000,000.

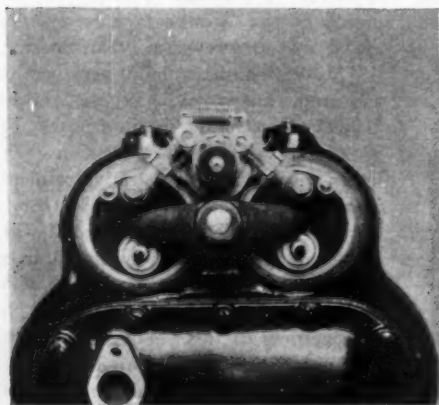
Scattered throughout the State, chiefly within a few miles of Detroit, are ten more factories that will produce many thousands of cars this year. Within eleven years a dozen of these concerns have trebled their capital stock, until now they have more than \$6,500,000 to their credit. A careful canvass shows that in Michigan more than \$50,000,000 is invested.

RAINIER PLANT MAY RESUME.

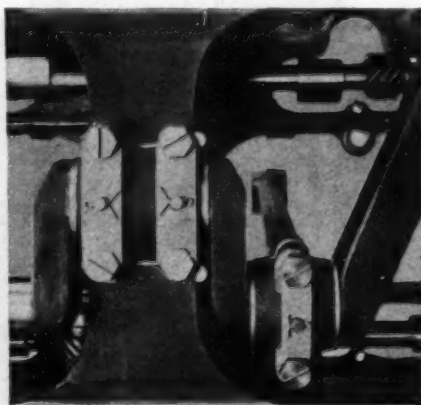
SAGINAW, Mich., Feb. 1.—Further advices received here indicate that the Rainier automobile plant will continue operations in this city. George C. Comstock, the company's attorney, has bought for \$20,000 at public auction all of the company's plant, machinery, unfinished product, etc., not covered by the \$100,000 mortgage, including also the company's equity in the mortgaged property. Besides being attorney for the company, Mr. Comstock is a director, and it is believed that with this purchase, and that of A. T. Ferrell, a Saginaw man, of the company's \$100,000 bonds, all conflicting interests have been harmonized.

THIS ONE HAS PERPETUAL MOTION ALSO.

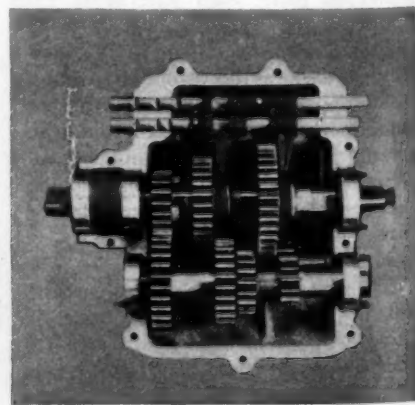
SAVANNAH, GA., Feb. 1.—A resident of Valdesta, near here, J. J. Pittman by name, has practically perfected an automobile run by compressed air generated by the machine itself. After working on it for many years he has now satisfied himself of its practicability and his patent attorneys have assured him that the invention will solve the perpetual motion problem. Doubtless with a few slight modifications this same machine can be used to transmute the baser metals into gold, square the circle, and generally clear up all of those old and time-worn problems!



Premier Low Tension Igniters.



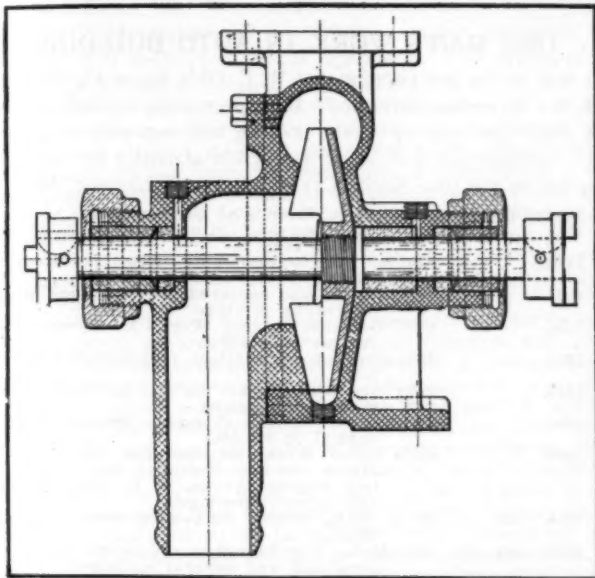
Connecting Rod and Main Bearings.



Premier Selective Transmission.

THE NEW MATHESON "SIX" FOR 1909

WILKES-BARRE, Pa., Feb. 1.—The newest addition to the Matheson line, the baby, so to speak, while showing the dominant Matheson features and workmanship, also shows a few departures more in keeping with up-to-the-minute practice. This new car is a six-cylinder, the first to be regularly produced in the Pennsylvania factory. Rated at 50 horsepower these 41-2



The Matheson's Powerful Gear-Driven Centrifugal Pump.

by 5 inch cylinders are fully up to the standard set by their older brothers. Strength and power is the Matheson keynote, and in the latest production of Designer Kenen this is upheld.

The motor, in common with the rest of the car, shows a few changes. Thus, the cylinders are cast in pairs. On the other hand, the valves in the head have been retained, these being of large diameter, mechanically operated and interchangeable. They are operated from a single camshaft on the right side, this being enclosed within the crankcase, and having cams milled out from the solid. From this to the overhead rocker arms the motion is transmitted by the long tappet rods. Former practice placed both pipes, inlet and exhaust, on the left, but on the present model the exhaust remains, while the inlet and carbureter have been removed to the right side. The latter is similar to the carbureter used on the large model.

Crankshaft Discs Increase Flywheel Effect.

The crankshaft is a one-piece forging with the flywheel flange forged integrally. This has two large discs for perfect balancing forged with it and runs on bearings of anti-friction bronze. The aluminum crankcase is of the box type and forms a solid pan from the radiator to the back of the flywheel. The lower section is the reservoir for the oil used in the auxiliary splash and lubrication of the main bearings. This is cast with compartments for each cylinder and is removable for access without disturbing the bearings or other parts. The gear-driven fan is mounted on imported annual bearings.

Ignition shows a marked breaking away from the practice exemplified on the four-cylinder motor, which will be retained for 1909. This is a patented low-tension system with a particularly effective make-and-break. The new system, on the other hand, uses an imported high-tension magneto as the source of current for a jump-spark system, a vibrator coil being used for starting. Extra batteries are carried in reserve to provide for any possible failure of the magneto system or any of its parts. This magneto, an Eiseman, is directly driven from the auxiliary shaft

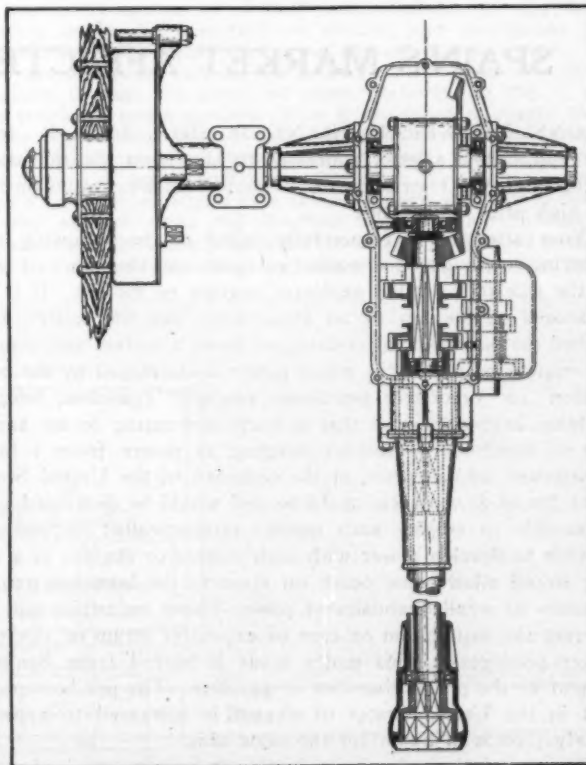
on the left hand side. The latter drives in succession, from the front end back, the lubricator which forms part of the crankcase, the centrifugal pump and opposite cylinders four and five, the magneto. This shaft, as is shown in the pump illustration herewith is made with a series of universal joints, which allow of the removal or replacement of any of the units.

Transmission Forms Part of the Rear Axle.

The drive from the engine is through a multiple disc clutch to a three-speed selective transmission located on the rear axle, and from there by floating rear axle to the wheels. This represents a big concession to public opinion and a radical departure from the usual Matheson chain drive. A multiple disc clutch, consisting of fifty-one discs, affords a friction surface of 1,500 square inches. This is practically indestructible, absolutely reliable, runs in oil, and is located in the hub of the flywheel. It is extremely flexible; will slip without heating; requires a light pedal pressure; absorbs all undue shocks, and affords a maximum of comfort to the passengers. The circulation of the water is effected by means of a powerful gear-driven centrifugal pump. Very large pipes are used in the cooling system, and a honeycomb type of radiator. Control is by spark and throttle levers on top of the steering wheel, an auxiliary foot throttle, hand lever for the speeds, and outside hand-brake lever. The important question of lubrication is well taken care of by a force feed lubricator forming part of the crankcase, with a small sight feed on the dash. Every engine bearing, including the valve rocker arms, is positively lubricated.

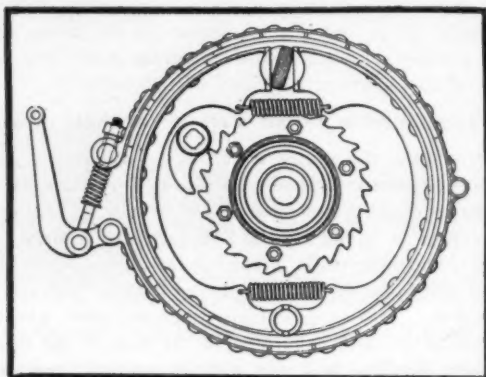
Four compensating brakes are fitted, two contracting bands on the outside of drums attached to the rear wheels, two internal expanding inside the drums. Metal-lined throughout and operated by pull rods, no cables are used. A simple hill pawl operating in the rear drum enables the car to be stopped on up-grade without recourse to the brakes.

A pressed-steel frame of the drop type, of liberal dimensions and reinforced by trusses, taken in combination with the three-



Outline Plan of Rear Axle and Transmission.

quarter scroll elliptic rear springs allows a maximum of comfort. The axles are of nickel steel, the front being an I-section forging; 36-inch wheels run on Timken roller bearings in front and imported annular ball bearings in the rear. These wheels are equipped with 4-inch tires all around, which is an unusually large size for a car of this weight, 2,900 pounds, and at this



Pawl for Stopping Car on Hill Without Brakes.

price, \$3,000. A long wheel base of 125 1-2 inches, coupled with the fine springing, will assure easy riding, being an excess of from three to six inches over former cars selling at the same price.

The bodies are of sheet steel following closely along foreign lines, are luxuriously upholstered and very comfortable. The equipment is unusually full, consisting of five lamps and gas tank, horn, tools, tire-repair outfit, tire carriers, etc.

CADILLACS WON BRITISH MERIT PRIZE.

LONDON, Jan. 27.—The Dewar Challenge Trophy is annually awarded by the R. A. C. for the most meritorious trial held during the year. After careful consideration of the many trials during 1908, the committee unanimously decided that the trophy be awarded to the Anglo-American Motor Car Co., Ltd. The following are the official particulars:

"Standardization Test of Three Cadillac Cars, February 29, 1908.—Three 10-horsepower cars for this test were selected from stock by the club. The cars, after being run about twenty-seven miles on Brooklands track, were dismantled and subsequently regrouped and reassembled, some parts also being taken from stock to replace some removed by the technical committee. The assembling was done without any "fitting," and the cars started up without trouble, each subsequently running 500 miles at an average speed of 34 miles per hour, with an average fuel consumption of 29.64 miles per gallon. No. 2 car had one minute's stop to replace a split pin in the ignition rod."

ONE MAN'S WORK IN AUTO BUILDING.

It was in the late eighties that R. E. Olds began his experience with the "horseless carriage." It is interesting to note his progress since that time up to the present, and herewith is given the official chronology, and some production statistics for late years, supplied by the Reo Motor Car Company, of Lansing, Mich.

1864, June 3.	Birth of R. E. Olds at Geneva, Ohio.
1885,	Purchased one-half interest in shop of P. F. Olds & Son.
1886,	Started first experiments with "horseless carriage."
1887,	Constructed and operated his first three-wheeled "horseless carriage."
1890,	Olds Gasoline Engine Works incorporated with capital of \$30,000.
1892,	Brought out a practical four-wheeled automobile.
1893,	Sold his first motor car to an India patent medicine company.
1896,	Olds Motor Vehicle Company organized with a capital of \$50,000.
1899,	Olds Motor Works incorporated, absorbing Olds Motor Vehicle Company and Olds Gasoline Engine Works, R. E. Olds, president and general manager.
1904, Jan.	R. E. Olds severed connection with Olds Motor Works.
1904, Aug. 17,	Reo Motor Car Company organized, R. E. Olds, president and general manager.
1904, Sept. 5,	Ground broken for first building of Reo plant.
1904, Oct. 15,	First Reo car run out of temporary quarters and started on a 2,000-mile test run, with R. E. Olds at the wheel.
1904, Dec. 1,	First Reo building completed.
1905, Jan. 1,	Wheels of new Reo plant set in motion.
1905, Mar. 21	First carload of Reos shipped from the factory.
1905,	Volume of Reo business first year, \$1,374,084.02.
1906,	Volume of Reo business second year, 3,097,579.15.
1907,	Volume of Reo business third year, 4,336,208.14.
1908,	Volume of Reo business fourth year, 4,799,010.71.

SPAIN'S MARKET AFFECTED BY HIGH PRICE OF GASOLINE

CONSUL-GENERAL FRANK D. HILL forwards from Barcelona a letter addressed to him from Madrid, calling attention to the restriction in the motor machine trade through the high price of gasoline:

"Your attention is respectfully called to the following data referring to the gasoline market in Spain and the effect of same on the sale of so-called explosive engines or motors. It is the consensus of opinion of all those who, like the writer, have studied the possibility of creating in Spain a market and demand for engines or motors in which power is developed by the combustion of vaporized petroleum products (gasoline, benzine, naphtha, kerosene, etc.) that a trade amounting to an annual sale of hundreds of motors, ranging in power from 1 to 20 horsepower, and in price, at the seaboard of the United States, from \$50 to \$1,000 each, could be and would be developed were it possible to employ such motors economically; i.e., were it possible to develop power with such motors or engines at a cost that would allow some profit on same to the immense number of users of small quantities of power whose industries will not warrant the installation or care of expensive steam or electrical power producers. This motor trade is barred from Spain at present by the prohibitive cost of gasoline. The per horsepower cost in the United States of 1 cent is increased to approximately 5 cents in Spain for the same unit.

"The technical result of a reduction in price to one-half would be the replacement by vapor or explosive motors or engines of

thousands of horse and hand gears, and the general commercial result would be the ability of the small class industrial all over the country to produce locally the exact amount of horsepower necessary to his specific needs at 15 centimes (\$0.026) per horsepower-hour instead of the present minimum cost of 30 centimes (\$0.051), with a minimum of capital invested in his power-producing installation. The so-called small class industrial exists by thousands, and the fact that 15 centimes (\$0.026) per hour is a profit-giving cost of 1 horsepower, proves beyond the possibility of successful contradiction that the consumption of gasoline, lubricating oils and other petroleum products would be increased many fold in a relatively short space of time.

"The lowest reasonable estimate of the number of motors which would be placed (given a reasonable price on gasoline) must necessarily run into the thousands, while the increase in the number of autovehicles consuming gasoline and mineral lubricating oils would of course be considerable. As the consumption of a 3-horsepower motor, when worked to full capacity, is 3 gallons per 10 hours, or 900 gallons per year of 300 working days, it will readily be seen that the annual consumption of gasoline in Spain would soon be increased millions of gallons, and as only high-class lubricating oils (side products in petroleum refinement) can be used on both motors and autos, the increased consumption of same would be correspondingly great." The future of this situation will be well worth looking into and that the field will pay for exploitation is assured.

EFFICIENCY OF MANLY HYDRAULIC DRIVE SYSTEM*

IN the issue of THE AUTOMOBILE, December 10, 1908, the preliminary report of the Manly drive showed the machinery and afforded such information as was then to be had within the bounds of accuracy. The question of efficiency had been investigated, but the figures were not available. The report of George H. Barrows, of Boston, Mass., is appended (in part), and it is believed that this material will adequately make up for the lack of information, of a certain character, purposely left out of the first description of the equipment. The report of the engineer as follows is herewith essentially given:

The Manly drive is a device for transmitting power by hydraulic means from one revolving shaft to another, with the object, first, to secure any desired speed of the driven shaft, either forward or backward, without changing the speed or direction of motion of the driving shaft, and second, to transmit the power to a shaft which is either in line with the driving shaft or which lies at any angle to the driving shaft and separated therefrom.

It consists of a multi-cylinder pump with variable stroke which is attached to the driving shaft, and one or more multi-cylinder motors having a fixed stroke, which are attached to the driven shaft, together with pipe connections or passages between them for transmitting the working fluid. The various cylinders, both of the pump and motors, radiate equidistantly from a central crank-chamber, and the pistons or plungers are connected to a single crankpin, which is common to all. The fluid used is ordinary machine oil, the lubricating qualities of which, and its freedom from danger of freezing, admirably fit it for such a purpose. When once filled the oil is used over and over again, being in continuous circulation from pump to motor through one set of pipes or passages and back again from motor to pump through another set.

Technical Description of the Manly Drive.—Fig. 1 shows the location of the multi-cylinders around the central crank chamber, the number in use in the instance illustrated being five. Fig. 4 gives an elementary sectional elevation showing the cylinders and valves of both pump and motor, and the pipes forming the connection between them. A represents the plungers and B the valves of the pump. Connection between the two is made by passages leading from the head ends of the pump cylinders to the centers of the corresponding valve chambers. C represents the valves and D the plungers of the motor. Here the passages between the valve chambers and the plunger cylinders lead from the center of the valve chambers to the head ends of the motor cylinders. The corresponding ends of the two valve chambers are connected by the pipes E and F. One pipe carries the oil in one direction and the other pipe returns it in the opposite direction. The outer ends of the five valve chambers of the pump are connected by the circular passage G and the inner ends by the circular passage H. Likewise the five valve chambers of the motor are connected by the circular passages I and J. In this elementary diagram the two shafts (both driving shaft K and driven shaft L) are shown in the same line, although disconnected. It will be readily seen that the two shafts may occupy any angular position with reference to each other, and any distance apart, the connecting pipes being arranged

* Continuation of the article in relation to the Manly drive, from the issue of December 10, 1908.

The Length of the Stroke is Adjustable.—The stroke of the pump may be varied at will; that of the motor is fixed. The variation of the pump stroke is accomplished by a crank on which is mounted an eccentric bushing. By revolving the bushing with reference to the crank its center line is brought into alignment with the center of the shaft, and when this position is reached no reciprocating motion is communicated to the pump plungers.

The High Speed is Coincident with Full Stroke.—When the pump

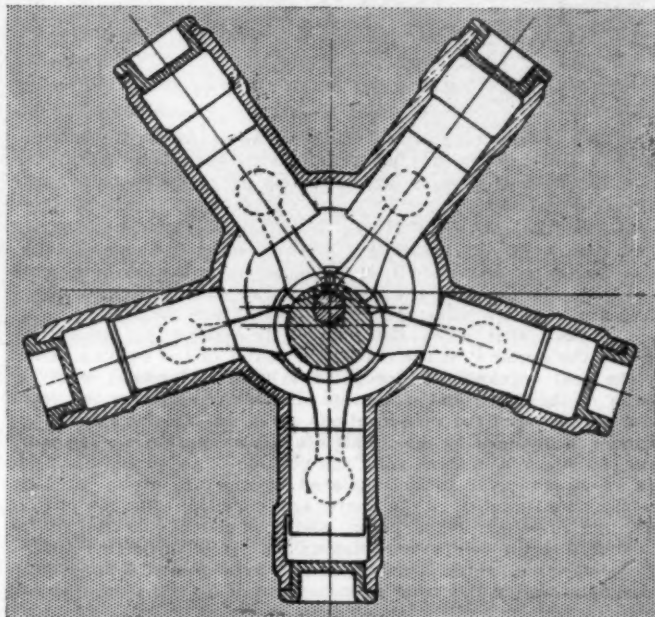


Fig. 1—Disposition of Multi-Cylinders Around Crank Chamber.

is running at full stroke the motor operates at the highest speed. By varying the pump stroke and thereby the velocity of the oil in circulation, the motor runs at a speed which is just in proportion to the amount of oil that passes through it. Any desired rotative speed can therefore be secured and maintained. For reversal the pump stroke first passes through the zero point. Then the valves change, and the oil is simply pumped in the opposite direction through the ports and pipes. Referring to Fig. 4, when the motor is going forward, Pipe E furnishes a supply to the motor transmitting the oil under pressure from pump to motor, while Pipe F returns it from motor to pump, thereby answering the purpose of an exhaust pipe. When the motor goes backward Pipe F becomes the supply pipe under pressure, and Pipe E changes to the exhaust pipe; the direction of circulation through the connecting pipes being completely reversed. In case of a sudden check in the speed or a quick reversal, the momentum due to

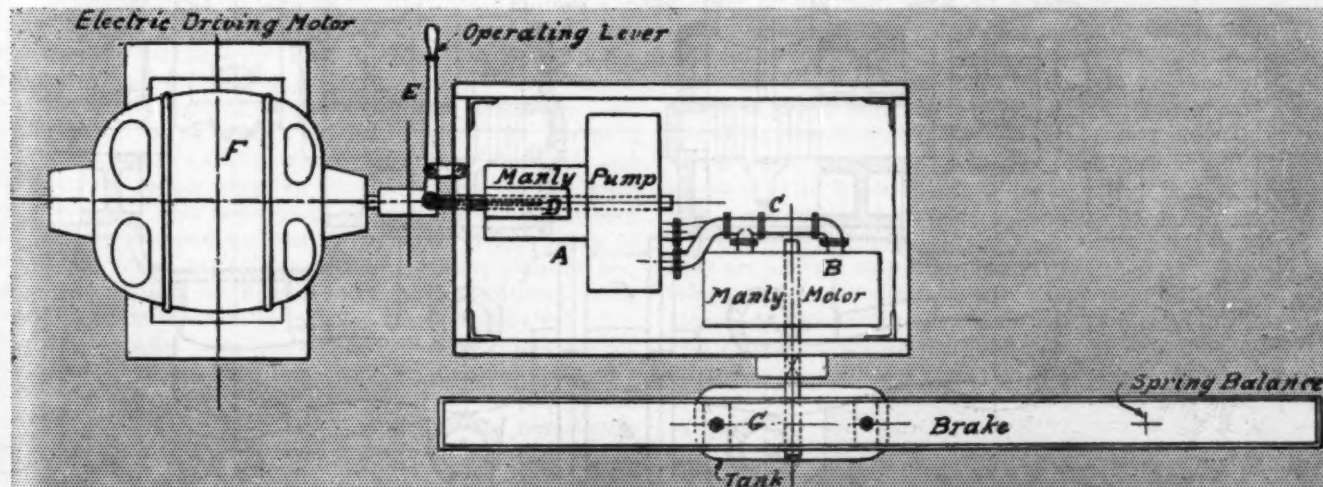


Fig. 2—Diagram of Testing Equipment Involving Motor, Manly Drive, and Prony Brake Suitably Balanced and Calibrated.

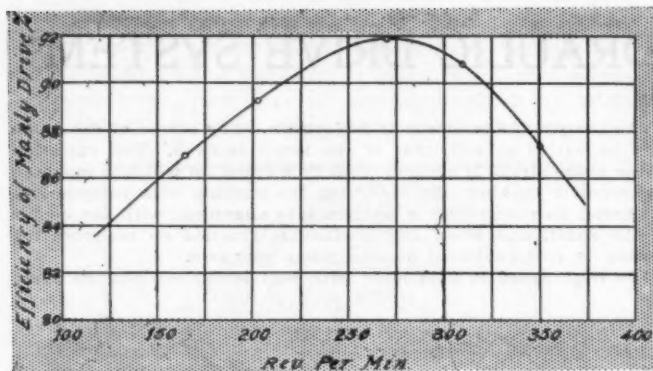


Fig. 3—Curve of Efficiency of Manly Drive as Found by Test.

running in one direction is taken up in the device itself. A safety valve, set at 2,000 pounds per square inch, opens a by-pass when there is an over-pressure, and this acts as a cushion, preventing injury to the machine.

How the Length of the Stroke is Adjusted.—Considering Fig. 3, the crank by which the length of the pump stroke is adjusted: A is the center of the shaft, B is the center of the bushing, while C is the center of the crank. Point C lies half way between points A and B when all three are in line. With this arrangement it is readily seen that when the bushing is rotated at 180 degrees around the center C of the crank, the center of the bushing, which is the real crankpin, is brought into exact alignment with the center of the shaft, and when this occurs, the length of the crank becomes zero and the reciprocations cease, as explained above.

Speed is Changed by the Rotation of Crank Bushings.—The rotation of the crank bushing from the position of maximum stroke to the no-stroke point is accomplished by the use of an auxiliary piston, lying parallel to the shaft, and supplied with power from the fluid pressure of the pump, and this piston operates on the bushing through appropriate mechanism. It is under the control of a pilot-valve, which is moved at will by means of a hand-lever. By simply moving this lever from one end of its throw to a central position, the speed of the motor shaft is varied from its maximum speed to a condition of absolute rest, and by moving the lever to the other end of its throw the motion is reversed and any speed is secured ranging from zero to a maximum speed in the reverse direction. Meanwhile, the driving shaft continues to run at con-

stant speed, whatever the speeds or direction of motion of the driven shaft.

In Neutral the Drive Serves as a Brake.—When the motor comes to absolute rest, the pump stroke being reduced to zero, no motion of the motor is permissible in either direction until the adjustment is changed so that the fluid again begins to flow from pump to motor. Its effect at such times is that of a brake applied to the wheels, though much more positive and reliable. The importance of the brake feature can hardly be overestimated when it is remembered that all the effects as to varying speed, reversal of motion and brake action are brought about by the movement of a single hand-lever. When the lever is in its forward position the machine goes forward at maximum speed. When the lever is pulled over to the middle position the machine comes to rest and is locked there as with a brake. When the lever is pulled over still farther to its extreme backward position, the machine goes backward at maximum speed.

Torque Increases as the Speed Decreases.—Still another feature of the Manly drive should be mentioned which peculiarly adapts it to road vehicles traveling in a hilly country, and that is the increase of torque in the driven shaft as the speed is reduced. The torque increases in exact proportion as the speed decreases. In other words, by slowing down the driven shaft the torque or pulling power may be increased to any degree within the limiting blow-off pressure of the safety-valve. Whatever the capacity of the engine, the vehicle may be propelled up any hill, however steep the grade, provided the speed is slow enough, and the wheels do not slip.

By referring back to the earlier article in *THE AUTOMOBILE* the aims and possibilities of the drive will be rendered at once apparent, and by examining the curve for efficiency (Fig. 3), as given in this article, it will be seen that the plan not only represents flexibility, but that the power is quite thoroughly used up in actual tractive work. Fig. 4 is a diagram of the equipment for test purposes.

As will be observed the efficiency is not only very high, but it is what is designated as a "flat-top" curve. True, the efficiency is not absolutely constant for all speeds, but it is very nearly so. The lowest efficiency is at the lowest speed (84 per cent.), and the highest efficiency is at the mid speed (92 per cent.), while the speeds range from about 120 to 375 revolutions per minute. Considering the very low speed, on the one hand, and the wide range of speeds on the other, the performance is extremely good, especially in commercial work involving slow speeds.

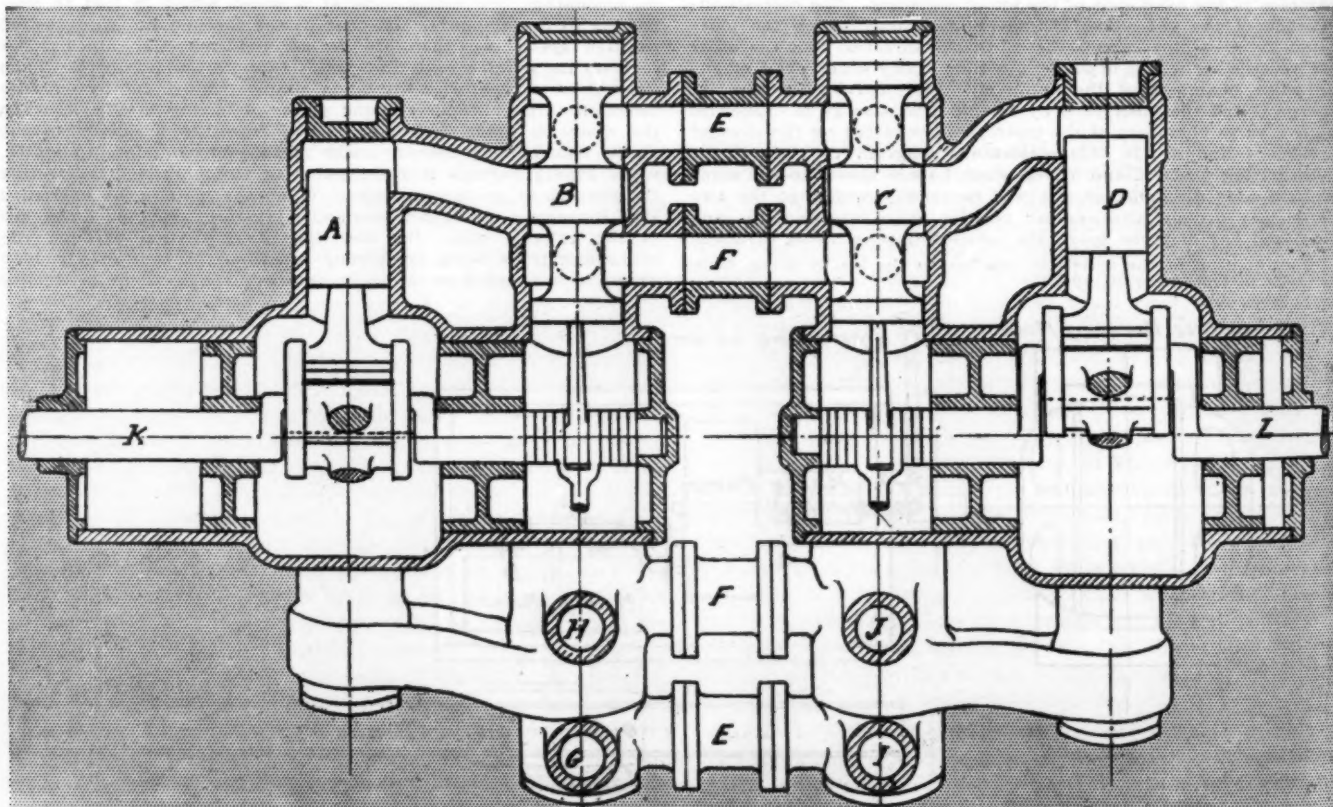
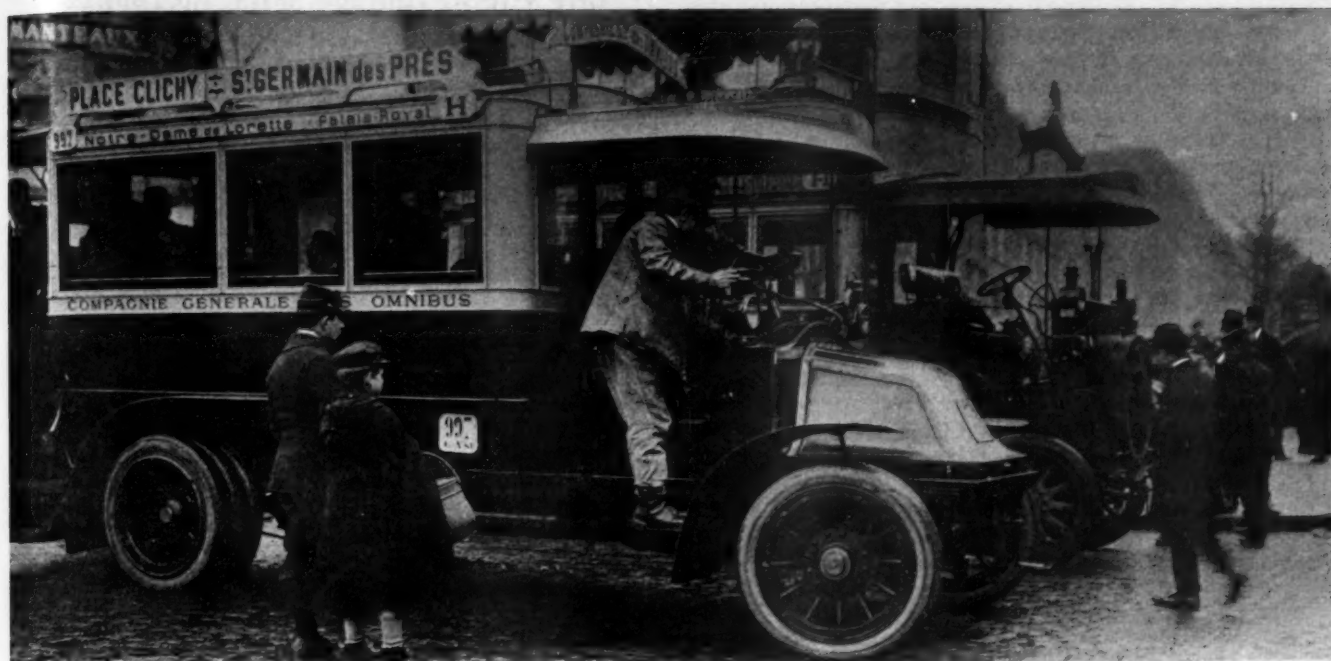


Fig. 4—Elementary Sectional Elevation Showing Cylinders and Valves of Both Pump and Motor.



New Renault Omnibus Now in Service in Paris, with Double and Triple Tires—Old Type 'Bus Alongside.

A FRENCH OMNIBUS WHICH USES PNEUMATIC TIRES

PARIS, Jan. 27.—An omnibus mounted on pneumatic tires is the luxury that the General Omnibus Company of the French capital is offering to its clients. In a little over a year's time the monopoly of the present company will expire, and if it is renewed it will be only on condition that all horse buses are abolished and a satisfactory type of mechanical vehicle substituted throughout the city. With a view to showing what it was capable of doing the company commenced the gradual conversion of its vehicles about three years ago, certain lines being changed from horse to gasoline traction. But a perfect type of bus was not easy to find, and, although the company has now nearly two hundred buses, they are not all of the A1 mark. Automobile traffic moves fast in Paris, the buses being no exception. The consequence is that the mechanism, mounted on solid rubber tired wheels, goes to pieces long before it ought to, the passengers suffer from excessive vibration and the inhabitants of houses along the routes complain of the noise and shaking of their dwellings.

After numerous tests the company has now decided to adopt a new type of bus, and it is as the result of this decision that the public is now initiated to the luxury of pneumatic tires. The first of the new vehicles, a Renault of 20-30 horse-power, has just gone into service from Place Clichy to St. Germain des Pres, Paris, one of the most difficult routes in the city, for it comprises crowded streets, some steep grades and rough pave, all enemies of the motorbus. The new Renault, the first of a series of 75 similar vehicles, is mounted on Michelin triple and twin tires, the former being for the rear wheels and the latter for the steerers. This new type of rim and tire, which has been under test for the past two years, only made its appearance in public at the recent Paris Salon, and is now being given its first real commercial test, the Renault being the first ordinary public service bus in the world to be mounted on pneumatic tires.

All previous buses have been two-deckers, with canopy top for the protection of outside passengers. The Renault is a single-decker, having capacity for 21 passengers, nine of them having first-class seats in the forward part of the bus, six second-class seats and six standing on the rear platform. The body is swung lower than on any previous type of bus, is wider, has a much more commodious platform and is entered with greater ease.

Artificial lighting is by powerful acetylene lamps, big side windows, in place of smaller ones on the older buses, let in ample daylight, and heating is by means of a pan running the full length of the bus and receiving the hot gases from the exhaust. Normally the exhaust is discharged vertically at the top of the vehicle, but when required for heating can be turned into the foot pan, thus going for utility.

A touring car chassis would naturally be impossible for a vehicle destined to take a charge of three tons; but though the Renault bus is a special construction, it embodies all the distinctive Renault features. Thus the frame is of very deep section pressed steel, strongly bound by cross members and angle plates and suspended on semi-elliptic springs both front and rear. The front wheels are wood artillery type, with special double dismountable rims; the rear wheels are of the steel plate type, each with dismountable rims for three tires. There is a considerable rear overhang of the frame to give the necessary body space, the body itself, however, being kept within the axles.

The engine, unlike other Paris buses, is not under the driver's seat, but carried forward under a Renault type of bonnet, with radiator on the dash, the water circulation through it being by thermo-syphon. The driver's seat is placed on the left-hand side, with brake and change speed levers in the center of the space, this position, it is believed, being to the advantage of the driver for crowded city work. Another innovation for a city bus is the use of a self-starter of the compressed air type, worked off the timing gears, as on Renault touring cars. The control of the starter is at the left-hand side of the dashboard, and is provided with a special lead for taking off compressed air.

Even for such heavy work all Renault touring car characteristics are adhered to for transmission and final drive, the clutch being of the leather-faced, inverted cone type, the gear set of the progressive type, with three speeds forward and reverse, and the final drive by propeller shaft and rear live axle. Naturally, all the parts are adequately strengthened for the work they have to perform, and gear ratio is very much lower than on touring models.

It remains to be seen whether a bus of this type—perfect from the standpoint of the passenger, for it possesses speed, quietness and an entire absence of vibration—will be satisfactory to the

operating company. It is declared that the ten pneumatic tires cost no more to maintain than the solid rubber and rubber block tires formerly employed. This, however, remains to be proved in practice. It is certain that there will be a considerable lengthening of the life of the mechanism as the result of the use of pneumatics, and this item will have to be taken into account when considering the smaller earnings of the bus due to the abolition of the upper deck. It has commonly been supposed that pneumatic tires were impossible for public service vehicles on account of their cost, but there was also another factor, namely, their inability to carry the loads put on commercial vehicles. If, as is claimed, the tire cost is not excessive, the introduction of twin and triple tires will cause a revolution in the motorbus world, for the public will not consent to ride on solids where pneumatics are available.

TRUCKS FOR TEA COMPANY.

NEW YORK CITY, Jan. 25.—A move indicative of the tendency of the times is the substitution of motor delivery wagons for the former horse service. This move on the part of any large company as a result of thorough investigation of the problem will doubtless be watched very closely by hundreds of allied concerns who are seriously considering a similar change.

The latest announcement in this line is that the Great Atlantic & Pacific Tea Company, of Jersey City, N. J., which operate 323 branch stores, and employ 1,500 horses in the handling and distribution of their supplies, have, after a series of extensive and varied tests, covering a period of over two years, decided to adopt the gasoline motor vehicle for delivery service.

This company's conversion has been demonstrated by placing its first order with the Autocar Company, of Ardmore, Pa., for a number of trucks to be used at five of their prominent branches, notably Baltimore, Newark, Washington, Passaic and Jersey City.

BUT THE "CABBIES" WILL DISAPPEAR.

DETROIT, Feb. 1.—A truce has been patched up between the warring factions in the cab-taximeter fight, and peace once more reigns, for the time being at least. When taxicabs first appeared in Detroit and stationed themselves in front of the hotels, a howl went up from the local jehus guiding the archaic vehicles compelled by the common council to content themselves with stands about the city hall. The "cabbies" wanted the "taxies" placed under the same restrictions regarding rates of fare as governed them, and insisted on the taxicabs being kept away from the hotels.

Finally a compromise was effected. The question of fares was waived by the "cabbies," and in return Manager Scrimger, of the taxicab company, expressed a willingness to share the space in front of the hotels with the horse-drawn vehicles, providing the latter could secure written permission from the owners of the hostelrys. As a result the "cabbies" are congratulating themselves on their victory, although the desired permission has not yet been granted.

IF WAR, FRANCE WILL TAKE ALL AUTOS.

PARIS, Jan. 27.—All automobiles in France, whether used for pleasure or business purposes, are to be controlled and registered in such a way that they will be ready for incorporation into the service of the army in time of war. Every year, from January 1 to 15, according to a project which has just received the sanction of Parliament, a census of automobiles must be taken.

Price to be paid the owner of an automobile being requisitioned for active service, will be clearly settled in advance, the vehicles being placed into three categories, comprizing those less than two years old, those having been in existence two, three or four years and those having been constructed five or more years before the date when the census is taken.

ONE ST. LOUIS COMPANY EMPLOYS 53 ELECTRIC TRUCKS

ST. LOUIS, Feb. 1.—One of the large brewing companies of this city operates 53 electric trucks and delivery wagons, more than half of which are Waverleys. Of the 53 electrics, 48 are in daily service and are standing up to their duties in a truly remarkable manner, as the following record for month's service, taken at random, will show:

28 did not lose a minute's service for any reason whatever.

16 missed one day apiece during the month on account of the drivers not being on duty.

4 lost from half a day to a full day on account of general repairs.

In other words, the number of automobiles out of commission for the month on account of repairs was less than one-fourth of

1 per cent. of the total in operation—and this is the record of a company that keeps its wagons constantly active.

To keep all these electrics in operation requires only one machinist, one battery man, a boy, a foreman and two wagon washers. This small amount of labor for so much equipment goes to show that electrics are easily maintained in first-class condition under favorable conditions of cost.

The Waverley Company, of Indianapolis, is the pioneer builder of electric vehicles for commercial purposes in this country and has spent thousands of dollars in costly experiments to develop its trucks to their present high state of efficiency. The value of this experience is now becoming manifest in the growing use and appreciation of electric commercial vehicles in all the large cities in very important work.



Waverley Electric Trucks in Daily Service for One of the Large St. Louis Breweries.

ELECTRICS CHASSIS AND BODY NOW BUILT SEPARATE

"In ye olden times" electric vehicles were so designed as to include chassis and body as inseparable. It was not then possible to select a chassis on which all the equipment would be found, and thereafter use any kind of a body that fancy might dictate. In connection with gasoline automobiles the reverse was true almost from the start, and it was soon rendered apparent that advantage was with the designs in which the chassis was complete and the body work figured as a separate unit, taking into account the convenience of the autoist.

It will come as no surprise to those who have kept tabs on the doings of the advanced designers of electric vehicles in the statement of the fact that "Baker" makes the chassis of the electric separate, and that any kind of a body can be selected. The illustration of one of the Baker chassis as here given will at once disclose the fact that all the machinery, including the battery and the control, is quite independent of the body work, and any desired design can be selected, or, in the course of events, it is desired, to make a change it is easy.

There are manifest advantages in a plan of this sort, aside from the fact that the body can be as wanted or changed at will. It is generally well understood that body work as it obtained in the past did not thrive because the battery gave off acid fumes, and the action of the fumes was such as to depreciate the body at a too rapid rate. In the new Baker way of building electrics the body is so separated as not to be under the influence of the battery, and the electrical equipment is so distinct as not to influence the situation for ill. On the other hand, the separate chassis idea is good in that should the body give out in time only a question of a new body would have to be considered, instead of being confronted with not only a new body but much more besides. Under the old plan, even if the chassis could be rescued, the fact remains that the battery box, wiring, and oft-times much else, would have to be replaced, and the upshot was that the task became far too formidable, with the result that the cars so designed went to the second-hand dealer.

In the illustration it is to be noted that the motor (electric) is located in the mid position, between the front and rear axles, and the "drum" type controller comes forward of the motor, under the footboards of the deck. The motor is of the "double reduction gear" type, and brakes are provided on a drum on the second shaft. The sprocket pinion is also on the second shaft, and one chain connects with the differential sprocket on the live rear axle. The live rear axle is of the latest and most approved type, provided with emergency brakes, and in every way it is up to a most fitting standard.

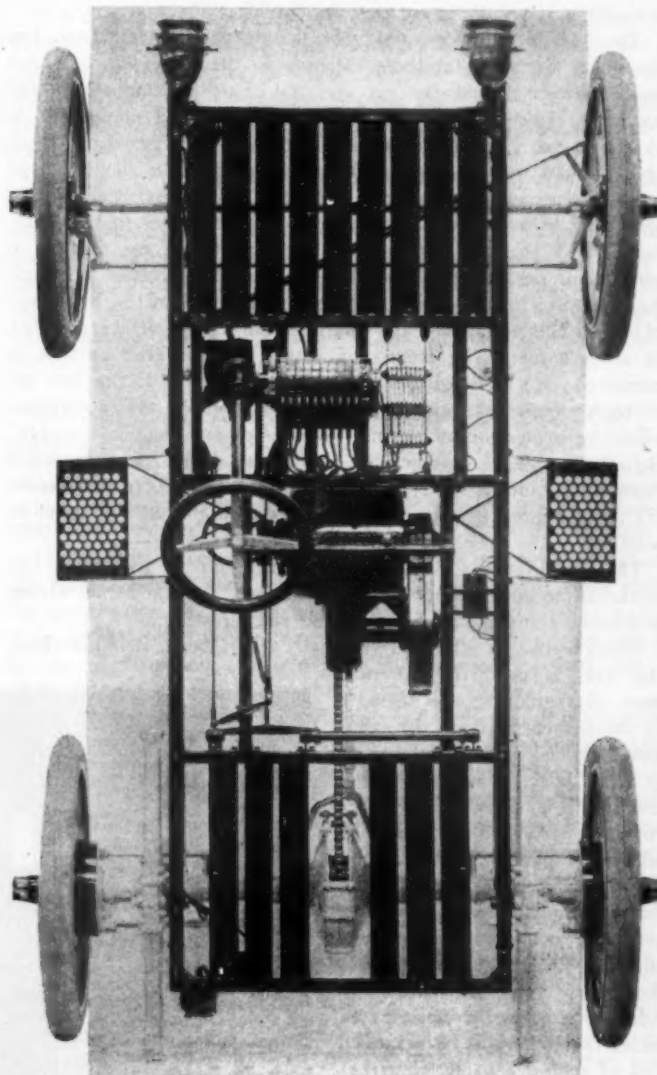
The front axle is a standard automobile proposition in every particular, and the one big difference lies in the fact that the steering wheel is on the left side. This scheme of steering is looked upon as of the greatest benefit in "town service," and it is in this same town service that electrics have proven to be of the greatest utility. The chassis frame is of the channel section quite up to the standard set for gasoline cars, and the spring suspension is elliptic in the rear, with half-elliptic front springs.

The electric wiring, which was the bane of all the earlier electric efforts, is so nicely done in the new Baker cars as to demand special mention. All who may have had occasion to follow the progress of the electrics in the past were in accord in one or two particulars, and it is very likely that the wiring question, with its high depreciation, was one of the points on which they agreed. They will all be glad to know that in the Baker chassis this question is not to be one for future trouble. The wiring is so arranged as not to be in the category of trouble. In the event of trouble on the road, which is remote in a car of good design, it will be easy to handle in view of the accessibility of the wiring, controller, and the motive power.

The steering wheel is of standard characteristics, and the drum

controller is manipulated through the good offices of a "miter gear," one member of which is on the drum and the other member is on a tube related to the steering post in such a way as to enable the driver to manipulate the drum with ease and according to the requirements. All the details for the perfect control of the car are worked out in the light of much experience, and they show the earmarks of a shop adequately equipped.

The battery space is large, and the ease with which the battery can be examined is something to be taken into account. In the older types of cars in which the battery, more often than



Baker Chassis Complete Allows of Body Choices.

not, was so placed as to be inaccessible, trouble was frequently of the sort that ended in a feeling of great dissatisfaction, on the count that if the "spot" could be reached the trouble would melt as snow in the full blaze of a tropical sun. In other words it was not the magnitude of the trouble so much as it was the fact that the "itch" could not be reached.

There is one other point in relation to the cars of the subject. It is well understood that the energy of the battery should be conserved, and if the chassis is not carefully designed along lines to cement harmony the energy of the battery is bound to be dissipated to a vast extent, and the mileage of the car will then be reduced. In the Baker cars this question of the mileage is well looked after and the losses are reduced to the minimum through the use of anti-friction bearings.

A HOME GARAGE EQUIPPED FOR ELECTRICS

THE garage illustrated is that of Mrs. John T. Brush, of Indianapolis, Ind., and in view of the wide interest in the practicability of the scheme it will come as a pleasurable bit of information, with assurance that, in this case, the home garage is an unqualified success. In view of the interest taken in this phase of the automobile situation, it will be well to outline the plan, enumerate the equipment, and state some of the advantages, and to say that the Pope-Waverly electric used in this case is what is known as the model 70-C. As a general rule it is true that space is cramped in well-populated districts, and a stable is not without serious drawbacks.

The garage is quite ample for the purpose in this case, but the point is made that there is room in the same which is not monopolized, in that the car and the charging equipment take up but a fair amount of space. The charging equipment is shown to one side of the car, and it consists of a panel on which are mounted in a neat and substantial manner the devices used for the purpose. The outfit consists of (a) the "service" switch, by means of which the electric service is admitted to the "bus-bars"; (b) the charging switch, through which the current is admitted to the battery; (c) a lighting switch, by means of which the lights are turned on in the garage; (d) a voltmeter, by means of which the voltage of the charging current is measured; (e) an ampere meter, by means of which the charging current is measured; (f) a rheostat, the function of which is to regulate the strength of the charging current; (g) suitable safety devices, affording protection as against excesses of the electrical supply; (h) the panel of marble, on which the devices are mounted (sometimes slate is used), the panel itself acting as an insulator; (i) the framing, of iron, which serves to maintain the panel in position.

The panel stands out from the wall enough to enable the workman to mount the devices from the back, and the wiring and connections are all out of sight, yet accessible.

When a direct current of electricity is available, it is the rheostat that is used for the purpose of regulating the strength of the current. If, on the other hand, alternating current has to be dealt with, it is then that a "rectifier" is provided for the purpose. At all events, the scheme is perfectly simple, and the charging plug is so devised that it cannot be inserted wrong, and in divers ways protection is afforded so that any one can do the work.

In Pope-Waverly electric vehicles the battery is so arranged and of such a capacity that it is rarely drawn upon for a full charge, and when it is to be charged it is "floated" on the circuit, so that the "man" does not have to attend to it, to any great extent, if at all. On rare occasions it is desirable to give the battery a full "corrective" charge, which is only a matter of starting the charge at a somewhat higher rate, and allowing the same to "taper" down to the minimum, then, by increasing the charging rate again and allowing it to taper off as before, the battery becomes refreshed to

a marked degree, and the amount of work attending is but slight.

Any one can do the "charging," as it is called, after being shown once, and while it is true that the time will arrive when the "batteryman" will have to come around and take the "gravity" of the electrolyte and equalize the same, it is far from the amount of work which has to be expended upon even a single horse. The vehicle is always ready for service, and it can be taken off the "float" at a moment's notice. As a matter of fact, the more the vehicle is used the better will the battery work, since it is true of batteries that the "pores" are kept open if the battery is charged and discharged frequently. True, the life of the battery must, in the long run, be taken into account, but it is remarkable how long a battery will last, especially if it is kept in constant use, receiving its charge daily, as the car comes home.

There is no denying the fact that constant use is better than intermittent service, and it is one of the advantages of the electric vehicle that it thrives in service. The Pope-Waverly is intended for that class of users who really need a car, and who utilize it frequently. Every attempt is made to reduce the maintenance to an automatic basis, and in the control of the car simplicity is so conspicuous that the cars may well be entrusted even to a girl of few years and small experience.

The car rolls on anti-friction bearings, the weight is moderate, and the distribution of the weight is on a scientific basis. As a result, the performance is smooth, the battery is conserved, and noiseless elegance is written all over the product. After the car (in a given case) has performed its day's work, it is run into the garage, washed, and the charging plug is inserted, the resistance is adjusted, and the rest is done without the personal attention of the owner or the man whose duty it may be to look to the wants of the car.

On the whole, it is plain that an electric will do far more work than can be done with horses, and the attention which must be lavished on horses would be wasted on the electric, moreover the electric is an equipment of surpassing elegance, ever ready.



Charging Plant in the Garage of Mrs. John T. Brush, of Indianapolis, Ind.

LETTERS INTERESTING AND INSTRUCTIVE

COMPARISONS ARE EXTREMELY ODIUS.

Editor THE AUTOMOBILE:

[1,729.]—Will you kindly inform me in your "Letters Interesting and Instructive" whether there is any inherent defects in air-cooled motors for automobiles? I am contemplating the purchase of a four-cylinder air-cooled car, recently placed on the market by a Western manufacturer, but am advised with great unanimity from all quarters not to buy an air-cooled car unless I can afford to get a well-known make which has been on the market for a number of years.

Does your experience and information warrant the assumption that the general aversion to air-cooled cars is simply a matter of prejudice, or is it founded from the experience of users of this kind of motor.

Also, if the air-cooled motor is reliable, why are they not in more general use, considering their many advantages?

New York City.

H. L. D.

Your question is one which cannot be fairly treated in a "trade journal," if the answer is to be of a specific character, for good and sufficient reasons. In the first place, it is not possible for the editor to become adequately familiar with the details of construction of any given motor to be able to take the stand and say the motor is not good. Then, it is not the business of a paper to predict. The paper is doing its duty to the trade and to its readers as well when the facts (of interest) are clearly set forth and if the trend is reflected.

It is not plain that there is a general aversion to air-cooled motors. The extent to which air-cooled motors are used in automobiles is quite too broad to enable one to say there is any evidence of aversion. On the other hand, there is evidence of the fact that the motors are quite satisfactory to the class of users who have the good sense to select the kind of motor that accords with the specific requirements. In your case it is a question of determining the specific needs and then you should find a motor which will do the specific work.

Your last question is extremely difficult to cope with and it may be true that the reason why air-cooled motors are not more generally used is the same reason why "grand opera" does not become as common as its merit would seem to indicate.

DISCREPANCY IN HORSEPOWER RATINGS.

Editor THE AUTOMOBILE:

[1,730.]—Below please find a list of a few automobiles showing the corresponding bore and stroke with claimed horsepower:

	Bore.	Stroke.	Horsepower.
Locomobile	4½	4½	38
Great Western.....	4	5	30
Overland	4	4	30
Mitchell	4½	4½	28-30
Cadillac	4	4½	30
E-M-F	4	4½	30
Franklin	4	4½	18

You will note especially that the Franklin, which has the same size cylinders as the E-M-F and Cadillac, does not claim near as much horsepower. I have talked with several of the large dealers, but with one exception I have not been able to get any of them to figure out how their car comes to have so much more horsepower than some of their competitors. One dealer was frank enough to admit that very few cars were up to the claims made for them by the manufacturers. If there is a way to figure this out, kindly give it in your answer to the above.

A SUBSCRIBER.

Merrill Park, Minn.

Some of the companies see it in one way and more in another. In some cases it is desired to keep in reserve enough power to render the performance of the cars somewhat better than the promises. In other cases the makers put their best foot forward. There may be cases in which the best foot is artificial. In such cases it is not of necessity in the motors claiming the most power for a given displacement. The 4 1-2 bore will no doubt do the work claimed for it. In fact, it is quite possible for the several cars to perform in the manner as claimed by the makers. What a motor will do is certainly a matter depending upon the manner in which it is designed.

WANTS TO KNOW IF IDEA CAN BE PATENTED.

Editor THE AUTOMOBILE:

[1,731.]—I would like to know if an idea which I have can be patented, and what should be done to secure the same. This is it: To close both ends of piston, as is done in steam engines; this would give two cylinders about the strength of three; and setting the crankshaft at 45 degrees, which would enable the chauffeur to start the machine from the seat. More sparkplugs would be necessary, but this is of little weight by way of increasing the price of the machine, even taking into account the fact that more valves would also have to be furnished.

T. LANDOZ.

Humacaco, P. R.

You can apply for a patent yourself if you have the skill necessary to enable you to make the necessary drawings, and render a description so clear as to enable any one skilled in the art to build the device. If you have not the skill, it will be necessary for you to engage an attorney with a license to practice before the patent office.

From your statements it would seem that you have in mind the fact that the cylinders can be made "double acting" and by so doing increase the number of power strokes in the motor. It may be as you say—it is not patentable, on the ground that it is now common practice in gas engine work, considering engines of the larger sizes. It has not been shown in practice that anything is to be gained in the application of the principle to automobile motors.

WHAT WILL A FAN DO FOR A HOT MOTOR?

Editor THE AUTOMOBILE:

[1,732.]—I have a light runabout that weighs about 1,300 pounds, which is equipped with an air-cooled motor. At times the motor runs very hot. Will a fan, suitably placed in front of each cylinder, about the difficulty?

P. O. PETERSON.

If the motor runs cool most of the time, or, even a part of the time, it would seem as if you do not look in the right place for the trouble. True, the fans, as you suggest, will help out, but it is probable that the motor runs hot because you do not afford it the uniform set of conditions, such as will afford you a uniform result.

In the first place, a motor will run hot if the spark is retarded and so held. Then, it is important to use an adequate supply of a suitable grade of lubricating oil. On the other hand, if the mixture delivered by the carbureter is rich the motor will heat up. On the whole it would seem as if you will have more to gain by regulating the spark, adjusting the mixture and supplying an adequate quantity of lubrication oil than proceeding in the manner you suggested.

KEROSENE CREEPS IN BEHIND THE CRUST.

Editor THE AUTOMOBILE:

[1,733.]—Kindly let me know what effect kerosene has on carbon; also, what is generally thought of the carbon cleaners now on the market? what effect acetone has on carbon as a cleaner, also kerosene, alcohol and turpentine? I understand that any or all of them used singly will clean carbon from cylinders, etc. Which is the better scheme, of using kerosene or any of the above, injecting it in petcock on top of the cylinders, or putting a petcock in the intake pipe between the carbureter and the cylinders and inject it in there? With the engine running, it will then be sucked into the four-cylinders in the form of a spray or vapor, the same as the gasoline is supposed to be sucked through pipe. Do you think that this is better than the first mentioned, as in that case the liquid kerosene lies on the pistons and is much more liable to leak through rings and dilute the cylinder oil already in the crankcase. Kindly explain how the G.L. economizer works applied to a carbureter. How is this possible to save the consumption of gasoline?

Brooklyn, N. Y.

W. R. N.

The crust in cylinders is not carbon. There is carbon in it. Kerosene has the property of creeping in behind the crust and killing the bond. The result is the crust will fall off of the walls and in small increments it will be swept out of the cylinders. The reports of the performance of carbon removers are so good

that we are persuaded into the belief that they are well worth a fair trial by any one who has trouble with cylinders.

If kerosene is to be used, it should be injected into the cylinders after the motor is shut down, and it should be left there over night or longer if possible. Then it will be necessary to remove the excess of kerosene with such sediment as will come out with it.

Alcohol does not seem to promise much as a remover of crust. Acetone has some value as a solvent. Turpentine is not as good as kerosene. In any case, no matter which of the solvers are used, if they get into the lubricating oil, it is necessary to remove the same, and replace it with new, pure, lubricating oil.

The "economizer" to which you relate is valuable in that it renders the mixture more nearly a permanent gas, and it is the aim to hold to a constant desirable mixture under all changes in speed of the motor.

DEPENDS UPON THE REAL QUALITY OF STEEL.

Editor THE AUTOMOBILE:

[1,734.]—Please answer the following questions: 1. Isn't chrome nickel steel of 125,000 pounds tensile strength suitable for axles and spindles for automobiles? 2. If so, is it better to have rear axles case hardened, and also spindles? 3. Spindles about 13-16 inch, and rear axle 1 inch diameter—are these heavy enough for a car of about 1,100 pounds? 4. I want a two-cylinder, 12-horsepower double opposed engine. How can I make the correct decision on these engines?

Galva, Ill.

The fact that the steel is chrome nickel and that the tensile strength is as you say, means very little. If the elongation is, say, 20 per cent in 2 inches, with the tensile strength as given, it will indicate a possible fine grade of steel.

If it is desired to have the spindles case hardened it will be desirable to use steel low in carbon; the carbon should not be above 16 points.

If case hardening is to be resorted to, it may be possible to consider the use of mild steel instead of chrome nickel steel. At all events, care should be exercised to procure a good grade of the same if it is used for the purpose.

If a live rear axle is used, the shaft should be 1 1/4 inch in diameter for the load you state. The fact that the steel is alloyed will not help you out by way of reducing the diameter of the shaft, on the ground that the torsion will not be reduced, and the modulus of elasticity of the chrome nickel steel may not be higher than the modulus for good grades of acid open hearth steel. If the modulus is the same, the amount of material should be the same.

To be able to keep from getting in wrong on the engine, it will be necessary to consider two or three good business principles. In the first place, you must pay enough to cover a good engine; then it is necessary to go to the makers of the kind you want, and you must be able to recognize one when you see it. At all events, do not evince a desire to part with your money; be curious about the engine until you are stalled with information in relation to the same, and fail to buy from the vendor who has not the time to tell you of the qualities of his product.

HOW TO TIME A FOUR-CYLINDER MOTOR.

Editor THE AUTOMOBILE:

[1,735.]—Will you tell how to time a four-cylinder motor with intake valves on one side and exhaust valves on the other? also how to put the timer back in its proper position? H. BUSH.
Schenevus, N. Y.

Put the timer back so that the range of spark advance will be about four-fifths of the total range. In other words, it is necessary to be able to "crank" the motor on a "retarded spark," and the timer should be put back in such a way as to enable you to crank with safety. But it is not a good idea to waste any more of the whole range in the cranking part than is necessary.

In relation to the question of correct timing, THE AUTOMOBILE of November 5, 1908 (page 639), will give you more information than will be possible here in limited space. The fact that all the valves are on one side of the motor will not alter the plan.

MOTOR KNOCKS WHEN THE SPARK IS ADVANCED.

Editor THE AUTOMOBILE:

[1,736.]—In a four-cycle gasoline motor, is the charge of gas, when the spark is advanced, ever fired before the piston reaches high center on the compression stroke, or does it always fire, when the spark is advanced, at the point of highest compression?

Why does a motor knock if the spark is too far advanced?

New York City.

A. B. E.

The mixture will fire when the spark is given if it is inflammable. Generally it is true that the mixture is fired before dead center (under running conditions) and the mixture is so slow burning as to take some time for the same to reach the state of complete combustion. Indeed, it is the case that (with the exhaust manifold off) the flame will "spit" after the exhaust valve is opened. This is but a sign of the fact that the combustion is not completed, even when the piston has traveled the whole stroke.

If the mixture is "quick," it is possible to cause the knock by the early increase in compression which follows ignition before the piston reaches the top of the stroke.

LEAKAGE AROUND THE SPARK PLUGS.

Editor THE AUTOMOBILE:

[1,737.]—The spark plugs and pet cocks on my car set in brass caps which screw into the cylinder head. There is a bad leak of compression around the thread of all these caps. Is there anything which I can put on these threads to make a tight joint—something corresponding to red lead on the thread of a gas or water pipe?

Newton Center, Mass.

W. T.

Take of yellow oxide of lead enough to make a paste for the purpose. Mix the same with glycerine (quite free from water) to form a paste of a good consistency. Use the same directly after mixing and allow it to set. It will set in half an hour, and it will attain great hardness. The glycerine must be free from water to attain the best results; which is not always the case.

BEST HARD LUBRICANT TO USE IN THE TIMER?

Editor THE AUTOMOBILE:

[1,738.]—Would like to ask what kind of a lubricant would you recommend for the inside of a timer? Also, how to clean the inside of an exhaust manifold? I cannot get at the inside with a scraper.

LOWELL S. ELLIS.

Warren, Mass.

A non-acid, non-mobile, hard grease is the best for the purpose. It should be of the "mineral" series; a hydrocarbon, in fact. Write to some of the advertisers of products of this sort; they will be found in the advertising columns of THE AUTOMOBILE.

Use kerosene oil. If you can have the work done by a sand-blast, the process is quicker.

BUT THE CAR WILL BE KNOWN AS THE "TOLEDO."

Editor THE AUTOMOBILE:

[1,739.]—On page 209, issue of January 28, we notice an article on the sale of the Toledo plant of the Pope Motor Car Company. We desire to make two corrections. One is, that the name of the new company will be the Apperson-Toledo Motor Company, but the product will be called the "Toledo," not the Apperson-Toledo, as stated in your article. A correction of your former article will probably avoid some misunderstandings and confusion.

Richard D. Apperson, the head of the syndicate purchasing the new plant, has never been interested before in the automobile business and has no connection whatsoever with anyone at present interested.

Toledo, Ohio.

THE TOLEDO MOTOR COMPANY,
F. C. Gilbert, Sales Manager.

FRANKLIN LAMINATED WOOD FRAME.

Editor THE AUTOMOBILE:

[1,740.]—In looking over your issue of January 21 we note on page 140 you refer to the Franklin wood frame as being armored. The chassis frame of the Franklin car is made of wood, laminated, and is not armored, and by reason of the fact that it is not armored, the shock and vibration which is ordinarily transmitted when steel is used, armored or otherwise, in the sill, is entirely eliminated.

We call this matter to your attention, thinking perhaps you will desire to make correction.

Syracuse, N. Y.

H. H. FRANKLIN MFG. CO.

MID-WINTER GOSSIP OF THE AUTO CLUBS

QUAKERS APPEAL CONTEST BOARD DECISION.

PHILADELPHIA, Jan. 30.—Although recognizing the jurisdiction of the A. A. A. Contest Board in the matter—with reservations—the contest committee of the Quaker City Motor Club does not propose to abide by the decision of the national committee in removing the disqualification imposed upon the Premier entry in the New Year's run, and will go over Mr. Hower's head with an appeal to the executive committee. It will be remembered that Chairman Hower's committee, to which the Premier people carried their case, decided that, in the absence of a specific rule covering the case in the regulations governing the run, the Quakers were not justified in disqualifying the car for having covered the hardest part of the Giant's Despair hill without its passengers, and removed the penalty.

Inasmuch as the A. A. A. had no set rules for the conduct of endurance runs, and in view of the fact that the run was conducted under rules promulgated by the Quakers themselves, a committee of the latter went to New York on January 22 to protest against the A. A. A. Contest Board's decision on the ground that under the circumstances the national body had no jurisdiction in the matter. The Quaker committee's idea was to argue the question of jurisdiction before the A. A. A. Contest Board and to abide by its decision.

The committee, therefore, repaired to New York on the 22d, but Chairman Hower absolutely refused to listen to any argument on the question of jurisdiction. The Quakers considered this action arbitrary, and it is understood that at one point the verbal combat became quite warm, and that the diminutive but doughty chairman ordered G. Douglass Bartlett, the Quaker's counsel, from the room. The latter asked Mr. Hower if the order was made as an individual or as chairman of the committee. The chairman replied that the order was made by him as chairman. Lawyer Bartlett, smothering his rage, turned on his heel and left the room, followed by the other Quaker.

On their return to this city a meeting of the Quaker City Motor Club Contest Committee was immediately called, at which it was unanimously decided to carry the case to a higher court, and the next day a formidable appeal, under no less than 22 heads, was sent to the executive committee, praying that the latter "review this whole matter, including the conduct of the chairman of the Contest Board, who arbitrarily stifled the freedom of speech and of argument on this subject."

The rank and file of the Q. C. M. C. seem to be of the opinion that the treatment of their representatives by the A. A. A. Contest Board, apart from the feeling that they have a good case and should have been given a hearing, was most arbitrary. Even the most conservative among them believe that a back-down now would be cowardly, whereas a patient hearing, followed by a reverse decision, would have been accepted uncomplainingly.

CLEVELAND AFTER GOOD ROADS CONVENTION.

CLEVELAND, Feb. 2.—There is a very fair chance that Cleveland will secure the 1909 Good Roads Convention, the local automobile club and the Chamber of Commerce having united their efforts to land the honor. The automobile club has already guaranteed the \$7,500 necessary, and a number of other cities have withdrawn in favor of the Forest City.

Cincinnati was one of the cities contesting for the honor, but withdrew to give Ohio, represented by Cleveland, a better chance.

The meeting place may have some effect upon the starting point of the 1909 Glidden tour, according to Chairman Hower, who has been in communication with interested parties in this city. If the Cleveland manufacturers send in their entries for the tour early enough, and the convention comes here, the chances will favor Cleveland, although both Detroit and Chicago are making strong bids for the honor.

PITTSBURGH A. C. ACTIVE IN GOOD ROADS WORK.

PITTSBURGH, Jan. 29.—At the invitation of the Automobile Club of Pittsburgh, D. Ward King, of Missouri, and the inventor of the famous King split-log drag, addressed a gathering of about three hundred at the old Monongahela House regarding the maintenance of dirt roads, this afternoon. Secretary Paul C. Wolff, of the club, had sent invitations to the road supervisors and selectmen throughout Allegheny County and to quite a few in the adjoining counties, and the response was most gratifying. William N. Murray, vice-president of the Automobile Club of Pittsburgh, presided in the absence of President Kneeland, others at the speaker's table being County Road Engineer George T. Bramsley and County Commissioners J. K. Campbell and Stephen J. Toole.

Mr. King earnestly impressed himself upon an audience, every member of which was an enthusiast for good roads, but not a few of whom doubted the efficacy of the King drag to help the dirt road.

"Dirt and water make mud any place in this country," said the speaker, "and you folks who can remember when you used horses, as I'm speaking for the Automobile Club of Pittsburgh now, must remember that you will never be through taking care of any kind of a road. I have never placed myself on record as stating that a dirt road cared for with the King drag would be as good as a macadamized road, but out of the 1,700 miles of road in Allegheny County, only about 400 are macadamized at present, so that you will have plenty of time to try out the King drag before they are all converted, and that is all I ask you to do; try it. I have seen many a macadamized road that was not in as good shape as a dirt road properly cared for."

Mr. King spoke for an hour, and a second hour was consumed in answering questions.

Secretary Wolff, of the Automobile Club of Pittsburgh, then reminded his hearers that the chief reason for calling the meeting was to renew the club's offer of \$300 in prizes for the best kept stretches of dirt road during the coming season, this amount being divided into a first prize of \$100, two of \$50, and four of \$25. Last year the club sent out a general letter to every road supervisor in Allegheny County," said Mr. Wolff, "and did not receive a single reply. A second letter to the same effect fared no better. Mr. King has asked you to try the drag and the Automobile Club of Pittsburgh not only asks you to do likewise, but will pay \$5 to every man who will build a King drag and use it but once."

County Road Engineer Bramsley then spoke, offering his services in aid of any of the road supervisors who wished to appeal to him. Anyone who was interested in the cause of good roads could find him at his office at any time, and he would be glad to extend every possible aid. Vice-President William N. Murray of the Automobile Club of Pittsburgh, then thanked the road supervisors for having attended in such large numbers, and a very cordial vote of thanks to the Automobile Club for having called the meeting was passed.

SAN FRANCISCO MOTOR CLUB.

SAN FRANCISCO, Cal., Feb. 1.—The runs and tours committee of the Automobile Dealers' Association has scheduled the first event for the automobile season of 1909. The event has taken the shape of a 200-mile endurance run to be held on February 7. The course is one familiar to every local motorist, being a double century around San Francisco Bay. A time limit of five and a half hours has been set by the committee after a careful examination of the roads had been made.

The San Francisco Motor Club will be asked to handle the event for the dealers, which makes the occasion notable, as this will be the initial bow of the club in such active capacity.



Vol. XX

Thursday, February 4, 1909

No. 5

THE CLASS JOURNAL COMPANY

Thirty-ninth Street Building, 231-241 West 39th St.
New York City

H. M. SWETLAND, President

EDITORIAL DEPARTMENT

A. G. BATCHELDER, Managing Editor
R. F. KELSEY, Associate Editor C. B. HAYWARD, Engineering Editor
W. F. BRADLEY, Foreign Representative

BUSINESS DEPARTMENT

A. B. SWETLAND, Business Manager
LOUIS R. SMITH FRANK B. BARNETT
W. I. RALPH, 1035 Old South Building, Boston, Mass.
C. H. GURNETT, 1200 Michigan Ave., Chicago, Ill.
F. W. VAN SICKLEN, Detroit, Mich.
H. H. GILL, Philadelphia, Pa.
T. B. VAN ALSTYNE, Philadelphia, Pa.

Cable Address - Autoland, New York
Long Distance Telephone - 2046 Bryant, New York

SUBSCRIPTION RATES:

United States and Mexico - One Year, \$3.00
Other Countries in Postal Union, including Canada - One Year, 5.00
To Subscribers—Do not send money by ordinary mail. Remit by Draft,
Post-Office or Express Money Order, or Register your letter.

FOREIGN SUBSCRIPTION AGENTS:

ENGLAND:—W. H. Smith & Sons, Ltd., 186 Strand, London, W. C., and all their
railroad bookstalls and agencies throughout Great Britain; also in Paris
at 248 Rue de Rivoli.
FRANCE:—L. Baudry de Saunier, offices of "Omnia," 20 Rue Duret, Avenue
de la Grande Armee, Paris.
GERMANY:—A. Seydel, Mohrenstrasse 9, Berlin.

Entered at New York, N. Y., as second-class matter.
The Automobile is a consolidation of The Automobile (monthly) and the Motor
Review (weekly), May, 1902, Dealer and Repairman (monthly), October, 1903
and the Automobile Magazine (monthly), July, 1907.

GROWTH AND STABILITY OF SLIDING GEARS.

Despite all attempts to do away with the sliding gear method of rendering automobile power plants flexible, it has grown and it has prospered. Besides doing the work in a manner quite up to a fitting standard, the sliding gear is proof positive of the fallibility of man, for in all truth no man living will be willing to say anything but that the sliding gear is based upon the most bungling theory of all; if, indeed, it has a theory of a positive character to back it up. The fact of the matter is the sliding gear seems to be the one way that is left, unless it would be more proper to say, it is the one way so far discovered by means of which motors are rendered flexible to a degree sufficient to serve for the purpose beyond the range of the planetary gearset.

True, in the classes of cars so designed as not to require a multiplicity of speed ratios, the planetary set seems to serve the purpose most adequately. When, however, it is necessary to afford more than two speeds ahead, it is the sliding gear that is used, and that it does serve the purpose to a vast extent is self-evident. This is in the face of innumerable predictions to the contrary, and it shows conclusively the fact that sturdy mechanicians can make a successful fight.

So it has been all along the line, when reasons could not be evolved, necessities urged, and while there has been considerable work to do over again, it has not been

shown, as yet, that the sliding gear principle of transmitting power is included in the category of temporary expedients. It affords the requisite flexibility, and in view of the advances made in materials, especially in knowledge of the "treatment" which will accentuate the kinetic properties of them, the sliding gear principle has advanced to a seeming permanent place in automobiles, and, strange to relate, in the hearts of users as well.

* * *

PATRIOTIC WEST WAITING FOR CHICAGO SHOW.

In examples of patriotism pure and simple, the effete and erudite East is sadly lacking, but as one goes farther and farther West he finds increasing examples of it existing in all its pristine vigor. Along the Mississippi River the examples of it are to be found at every turn, taking as it does the form of local, or perhaps a better word would be sectional, patriotism. Thus the coming Chicago show will display something very much on this order, when thousands who could have attended the New York shows but refrained from so doing in order to further the cause of the national show with all the best features of the other two, will turn out. This rolled-into-one display is looked upon as the only real show. Thus, the inhabitants, with true local pride, stay away from the allurements of Broadway so as to be blown along Michigan avenue. These hustling Westerners will have their usual very good show, will sell a very large number of cars, generally transact a huge volume of business, and probably outdo all former exhibitions in point of attendance in the week intervening between February 6 and 13.

* * *

WHAT IS THE TRUE ANSWER?

According to the census of the Department of Agriculture the number of horses in the United States has increased enormously in the last few years, despite the wide use of automobiles. The statistics of the department show as follows:

Jan. 1, 1898: 13,960,911 horses, valued at \$478,362,407.

Jan. 1, 1909: 20,640,000 horses valued at \$1,974,052,000.

The increase in value is in part due to the fact that the unit price was \$34.26, January 1, 1898, while the price per horse was figured on a basis of \$95.64, January 1, 1909. The fact remains that the number of horses increased some 7,000,000 in the interim of time. Why? When the automobile began to assert itself, in other words, when it was rendered apparent that the automobile was a practical device, capable of doing the work of goods transportation, the breeders of horses reduced holdings and the actual value of horseflesh fell to a low figure. It was then that the automobile enthusiast swelled out his chest and rent the air with his claims to the effect that animal transportation was bound to fall out of existence. The facts were not all in for the reason that the automobile industry proved incapable of turning out enough automobiles to handle the merchandise of the market, and with a widely growing trade it became necessary to fall back on horses to a vast extent. This year may make for an output to indicate that a considerable increase of the commercial business can be handled.

WHAT PROPOSED NEW JERSEY LAW CONTAINS

TRENTON, N. J., Feb. 2.—Interest centers in the Colgate automobile measure, which amends the present Frelinghuysen law by prescribing that all automobiles to travel in this State must have a plainly audible trumpet signal; must carry exhaust pipes directly parallel to the ground or turning slightly upward; the Commissioner of Motor Vehicles to receive all complaints for violation of the speed laws, the same to be in writing and verified; he must investigate them within 30 days from their receipt, and if in his judgment a case can be made out he can cause a warrant to be sworn out and placed in the hands of a Justice of the Peace for adjudication in the municipality where the alleged violation took place.

Non-residents of this State, when displaying their identification license numbers of other States, are to be allowed to tour in New Jersey for 10 days without taking out a New Jersey license within one year, when they pay a fee of \$1 to the State Commissioner of Motor Vehicles.

The measure forbids the use of a muffler cut-off in cities or towns or within 500 feet of any other vehicle. The speed limit in the open country is changed to 30 miles an hour and exempts drivers from penalties regarding maximum speed limit unless the excessive speed shall be proved to have been continued for at least one mile. Complaint may be made and proved before the State Commissioner of Motor Vehicles upon his conceiving that there be cause after investigation, and within 30 days shall cause the person to be apprehended in a summary manner before a Justice of the Peace or any committing Magistrate in the municipality where the law was violated.

A companion bill to this Colgate automobile regulator is a measure also introduced by him, compelling the placing of lights on all vehicles of any class using the highways from one hour before sundown to one hour after sunrise, this white light to show at least 250 feet. A penalty of \$10 is provided for failure to comply.

ONE SUIT AGAINST THE NEW JERSEY LAW.

The test case commenced last Summer by the touring board of The White Company to test the validity of the New Jersey automobile law, popularly known as the Frelinghuysen law, has now reached the Supreme Court of the State. Judge Reed of that court recently granted a writ of certiorari, thus permitting the case to be argued within the next few weeks. The case has been through the Police Court and the Court of Common Pleas, but neither of these courts undertook to pass upon the constitutional questions involved, but simply ruled on the facts of the case and the working of the statute.

It will be remembered that the case originated with the arrest of R. H. Johnston, in Trenton, because no New Jersey license number was displayed upon his machine. The principal contention of The White Company is that the State of New Jersey has no power to tax a non-resident citizen.

SAVANNAH MAY WANT TO HAVE ANOTHER.

SAVANNAH, Ga., Feb. 1.—The Savannah advertising fund will receive a sum of not less than \$12,500 from the receipts of the Grand Prize and international light car races.

The executive committee of the club held a meeting at the Chamber of Commerce, Friday night, and went over the bills that had been paid and ordered a great many more paid. Bills of all sort of expenses rained down for a time, and it looked as if the fund might be swept away, but finally the storm ceased when the figures had reached a sum a little above \$13,000, and there they stood when adjournment for the evening was taken.

The accounts showed that a little over \$19,000 was received from the sale of grandstand seats. The A. C. A. turned in from seat sales and entrance money, \$7,400; privileges netted \$2,049.65. The railroad sold seats aggregating \$3,000. The total receipts from all sources was not far from \$45,000.

CHICAGO OFFERS SPECIAL CUP FOR GLIDDEN

CHICAGO, Feb. 1.—Formal announcement has been made by the Chicago Motor Club that it has offered a trophy to the A. A. A., to go to the car making the best showing in the consumption of fuel in the annual Glidden tour, which offer has been accepted by Chairman Hower. That official has not as yet outlined his rules regarding the competition for this cup.

So far as the rules for this economy test go, they undoubtedly will be about the same as prevailed in the local 1,000-mile reliability last fall in which the Standard Oil Company trophy was put up and was won by Ray McNamara in a Premier roadster. This was decided under the formula originated by the Chicago Motor Club, in which the result is arrived at by dividing the weight of the car and load as expressed in pounds by the weight of the gasoline consumed in ounces.

SPACES ASSIGNED FOR NEWARK'S SHOW.

NEWARK, N. J., Feb. 1.—With the allotment of spaces for the second annual automobile show to be held in Roseville Armory, February 20 to 27, success is assured, for the present number of applications lack just four of filling all the available space, and



Essex Troop Armory Where Newark Show Will Be Held.

these, too, are of a very high grade. The show will be purely a Newark exhibit, every local concern being represented.

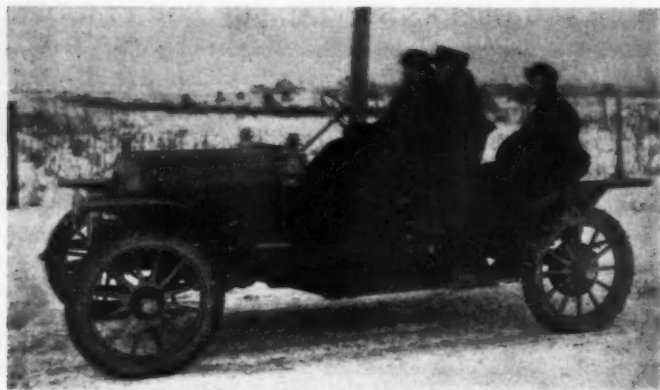
An elaborate musical program is being arranged. Sweet's orchestra has been engaged again this season, and this feature will be particularly attractive.

LATEST FROM NEW YORK LEGISLATIVE MILL.

ALBANY, N. Y., Feb. 3.—Assemblyman Marks, of New York, to-day introduced a bill which looks as though it came fresh from some insurance office, as it provides that every automobile owner on taking a license shall file with the secretary of State a \$10,000 insurance policy to pay all losses and damage claims arising from any one accident, without regard to questions of negligence or contributory negligence. It also provides for filing a similar policy of \$2,000 by chauffeurs to protect for damages to vehicles and for damages for which the owner becomes liable over \$10,000.

AUTOMOBILE ENGINEERS SELECT SECRETARY.

President Henry Hess, under direction of the council, has arranged with Alex. Churchward to become active secretary of the Society of Automobile Engineers. The society is to be congratulated upon securing a well-known engineer of such high standing in the profession to represent it in this capacity. The new secretary will assume the duties by March or April 1, to suit the convenience of the retiring secretary. The society expects to open a permanent office.



Testing Out an Inter-State Over Winter Roads.

TESTING OUT CARS OVER WINTER ROADS.

MUNCIE, Ind., Feb. 1.—In the process of testing cars every opportunity which will impose unusual and gruelling conditions upon the machine is always accepted with alacrity. For this reason the snow storm of last week was welcomed by the automobile manufacturers in this section as affording them additional chances of putting their cars through the hard work required by winter roads. The accompanying photograph is of an Inter-State car, with Chief Engineer Claude E. Cox at the wheel, Sales Manager D. W. Henry beside him, and Lawrence A. Hart in the rumble seat. This party covered the route from Indianapolis to Muncie, a distance of 57 miles, in 2 hours 28 minutes.

PACKARDS HAVE ROUND-THE-YEAR TRY-OUTS.

Winter testing forms a large part of the experimental work of the Packard Motor Car Co. The several experimental cars manufactured each season—a year or more in advance of the regular product—are driven many thousands of miles in hard overland trips by the executives of the company, as well as by Chief Engineer Huff and others. Recently when M. J. Budlong, president of the Packard Motor Car Co., New York, was at the Packard factory, he, in company with President H. B. Joy and S. D. Waldon, general manager, devoted considerable time to hill-climbing experiments on the steepest snow-covered grades in the vicinity of Detroit. These tests were accepted as convincing proof of the hill-climbing ability of a Packard "Thirty" and served to reinforce the tests and demonstrations made over the same hills in the summer time.

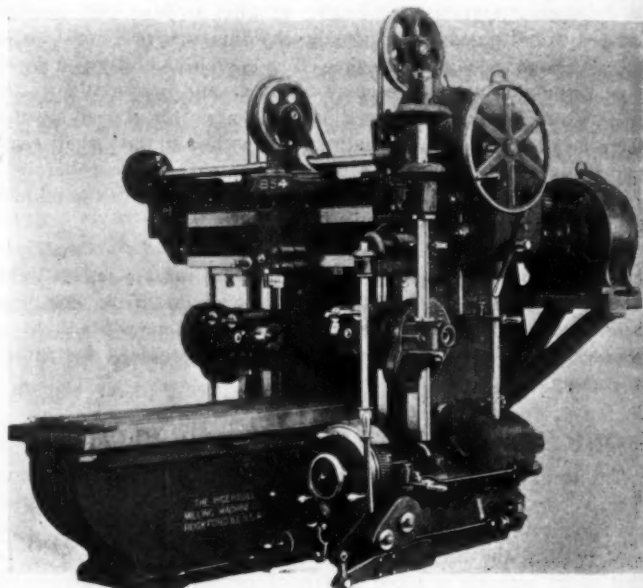
No change is made in the Packard car, say its makers, from one season to another until the new feature has been thoroughly tried out under all conditions of traveling and in both Summer and Winter weather. Thus, the construction contains nothing which has not had in actual road work harder and more trying service than it will ever be subjected to.



Busy Packardites: President Joy, Manager Waldon, M. J. Budlong.

AUTOMOBILE TYPE MILLING MACHINE.

ROCKFORD, ILL., Feb. 1.—The manufacturer has been more interested in machining processes and machines than the public, but now the latter is showing more interest on the assumption that if the machining processes are not right, the resulting product cannot be right, and inversely correct machine work makes a fine car. The automobile and its parts from the first have required many intricate parts which the ordinary machine tools would not handle. The great number of these special parts to be machined have given rise to the production of the milling machine shown in the accompanying illustration. This the manufacturers, the Ingersoll Milling Machine Company, call the Automobile Type Milling Machine. It is made particularly for milling engine bases and transmission cases for automobiles. It is not only adapted for this, but also for any other work which may be machined on a planer or milling machine. The three spindles have speeds varying from 15 to 120 r.p.m. These are arranged for face mills up to 10 inches in diameter on steel or cast iron, but for aluminum work larger cutters may be used. The machine has capacity of 26 in. horizontally and 24 in. vertically.



New Automobile Type of Milling Machine.

The motor equipment consists of a 15-horsepower d.c. shunt wound Westinghouse type S motor, which is mounted in the rear of the machine, where it takes up little space and does not interfere with the work nor the operator. The speed changes from 875 to 1,500 r.p.m., are effected by variations in the shunt field by means of a Westinghouse drum type controller, not shown. In addition to this range of speed there are four changes by mechanical means, enabling the cutting speed required by the work to be obtained with exactness and with certainty.

TAFT WILL HAVE HIS AUTO AFTER ALL.

WASHINGTON, D. C., Feb. 2.—After the prolonged Senate debate of the previous week, which resulted in the elimination of the \$12,000 automobile appropriation from the Urgent Deficiency bill, commented upon in these columns, the House to-day made short work of this same item. A very short and spirited debate resulted in an overwhelming vote in favor of insisting upon the retention of this provision in the bill. The vote of 185 to 27 showed very clearly the favorable sentiment, which one representative expressed very well when he said in part: "If it would conduce to the comfort, happiness, and well being of the chief executive, the money would be well expended, not only every four months, but every month in the year." In connection with the Senate's previous opposition, it is notable that the stable appropriation of \$35,000 will be at Mr. Taft's disposal to purchase automobiles if he sees fit, even if the Senate refuses to pass the item.

WRIGHT TRIUMPH IN EUROPE IS COMPLETE

PARIS, Jan. 27.—At a reserved table in the dining hall of the Automobile Club of France five men were united for lunch. It was a private gathering, entirely without ceremony, but one of more than ordinary importance, as was evident from the attention given to it by the maitre d'hotel and the deference of the usually impassible yellow-breeched waiters. The French "Tire King" presided, the position to the right of M. André Michelin being occupied by Wilbur Wright, now "King of the Air," and that to the left by Orville Wright, recently arrived from Dayton. The two remaining seats were filled by Hart O. Berg, European manager of the Wright brothers, and by M. Clauss. When the dessert was served M. Michelin brought forth his surprise in the form of twenty crisp bank notes of one thousand francs each and handed them over to Wilbur Wright, with the remark that he had paid the first portion of his debt for the magnificent performance at Le Mans on the last day of the old year, and hoped to present the work of art very shortly.

Before expressing thanks Wilbur Wright counted out ten of the notes and handed them over to his brother without a word; the two were engaged in the same task, and a victory for the one was a victory for the other.

For seven successive years M. Michelin has engaged himself to hand over a similar amount to the aeronaut fulfilling conditions laid down by an independent committee. The first sum has been won with such a lead on the minimum distance imposed that the donator had reason to suspect that his \$20,000 for a flight from Paris to Clermont-Ferrand would not be allowed to lie in the bank for very long. Wilbur Wright assured him, however, that he would not attempt to win the big prize this year.

"Although we have covered more than half the distance from Paris to Clermont-Ferrand," said he, "there are so many difficulties on this trip that I do not think anybody will attempt it this year. It is not the distance that is the greatest difficulty, for with suitable training it is possible to fly almost any distance; the difficulty is that to reach your city it will be necessary to pass over very varied country, descending into valleys, then mounting to great altitudes, thus meeting with varying currents and wind from every quarter. The ideal for an aviator is to fly in a constant breeze, and to approximate this ideal it will doubtless be necessary to make considerable detours to reach Clermont-Ferrand. Then it will be a difficult matter to climb the sides of the Puy de Dome, the summit of which is nearly 5,000 feet above the sea level; the plan that suggests itself is to keep near the face



of the mountain and climb as a bird of prey does, but even this is not an easy matter."

The Wright brothers' triumph is complete in Europe, for in addition to winning the most important prizes of the year, they have now enrolled one of their formerly important rivals as a pupil. Leon Delagrange, at one time record man of Europe, has decided to buy a Wright machine, and will take lessons from Wilbur Wright during his stay at Pau. Henry Farman, too, in view of his repeated failures, or only partial successes, has sold his Voisin Frères machine and will make a fresh start with an aeroplane built according to his own ideas.

Wilbur Wright has left Paris for Pau, in the Pyrenees, and will be joined by his brother Orville and his sister, Miss Katherine Wright, in a few days. The next item in their program is the training of the three pupils required under the Lazare Weiller conditions. This work will be undertaken by Wilbur, while Orville will rest and endeavor to recover complete strength under the genial climate of the Franco-Spanish borderland. Six aeroplanes have to be built for the committee, and it is Orville Wright who will supervise the construction. By the end of March or early in April it is believed that all will be finished and the entire party will leave France for America.

An extension of time has been granted by the United States Army Department for the fulfillment of the contract that Orville Wright was engaged in when the unfortunate accident last September laid him low.

In conversation with THE AUTOMOBILE representative, Orville Wright declared that he had full hopes of being able himself to carry out the program. "The doctor did not think I should be able to fly again before the middle of the Summer, but at the rate I am progressing I have every hope of handling a machine at Fort Meyer before the month of June. The conditions are difficult, comprising a speed test of five miles out and five miles home and an endurance test of one hour at a speed of not less than forty miles an hour, each one to be made with a passenger on board. The short speed test is an exceptionally difficult one, for we have to fly over the rough, hilly ground around Fort Meyer, where variations in the direction and force of the wind are frequent. I have such confidence in the machine as to believe that we shall succeed."

Aeronautical conditions are becoming better in every way in Europe, where the scepticism of the earlier time is not now much of a factor, and there is no denying the fact that success depends upon the attitude of all who may influence the situation.

CHATEAULAND NOW WANTS AEROPLANE MEET.

PARIS, Jan. 27.—Anjou, robbed of its Automobile Grand Prix, has abandoned all idea of running a race itself, and will seek fame in the organization of a large aeronautical competition. The subscriptions obtained toward the 100,000 francs subvention for the Automobile Club of France will be returned in their integrity, the French club being asked to meet the expenses incurred in obtaining the money and in preparing for the defunct race. One village on the projected course is so vexed at the loss of the race that it has put in a claim for an indemnity that will doubtless not be forthcoming.

The aeronautical program is at present in an embryo condition, but doubtless the manifestation will develop into an aeroplane race from Angers to Saumur and return, a spherical balloon competition and a demonstration by dirigible balloons. The dates chosen are the last week in September of the present year. The Aero Club of France will associate itself with the district in the organization of the meeting.

WHAT THE AERONAUTICAL FEDERATION DID.

LONDON, Jan. 27.—A prize of \$240,000 for aviation and dirigible balloons has been founded by the International Aeronautical Federation in its meeting here. A gold cup of the value of \$10,000 will be awarded to an aeroplane; money prizes of \$20,000 each will be given to dirigible balloons and flying machines, and a \$10,000 cup will be awarded in each section. The ten prizes of \$20,000 each are to be competed for at intervals of five years. In addition, the sum of \$20,000 will be devoted to the construction of sheds for the competitors in these events. It is suggested that the United States, Germany, Great Britain and France should each contribute \$40,000, Belgium, Spain, Italy and Austria each contributing \$20,000.

Rules have been decided upon for the Gordon Bennett aeroplane race to be held in France this year. The race will take place around a fixed course five to ten kilometers in circumference, the minimum distance traveled to be officially recognized, being fixed at twenty kilometers. Stops may be made during

the progress of the race, the competitors to start off again under their own power and without outside assistance, the winner being the one making the fastest time. The race must take place at a fixed date and at a fixed time.

With reference to the recent friction between the Aero Club of France and the Automobile Club of France, the following proposal by Roger Wallace, on behalf of America, was carried: "The International Federation decides that any affiliated aeronautical club is free to act in its own country and can enter into any arrangement with another organization, but only on condition that it maintains in all its integrity the fundamental statutes of the federation." The situation will be watched with a good deal of interest, and that this, like every other problem, will be solved in a fitting manner, is fully anticipated.

FRANCE MAY HAVE OUTLINED TOO GREAT A TASK

PARIS, Jan. 27.—In her enthusiasm for flying, and eagerness to secure first position in the aeronautical world, France has mapped out for herself a program which is going to lead her into difficulties. The year 1909 is to be given up to flying; aeroplane races are to be so numerous and so exciting that there will be no need whatever to hold automobile speed tests. Monaco has to set the ball rolling with a carnival calling for flights across the blue waters of the Mediterranean, rewarded by cash prizes of \$20,000. The Aero Club of France, the Automobile Club of France, the Anjou District, and a host of others are to have speed tests for machines that navigate the air. The time for action has arrived, and France has awakened to the fact that she has set herself a task she is by no means able to accomplish.

For the soar across Monaco Bay there are nine entries of as many magnificent machines, produced with much scientific skill and lacking in nothing but the ability to fly. The list is headed with three Antoinettes, masterpieces of fine workmanship, which up to the present have only accomplished a couple of miles in the air between them. Breguet has a biplane and a gyroplane, which may have flown, but if so no one but the pilot ever witnessed the performance; Baron de Caters has a Voisin biplane which on one occasion rose from the earth, and Georges Vuitton has a helicopter which has not yet peered forth into the light of day. Leon Delagrangé is the only aeronaut in the group having a past that would entitle one to believe him capable of fulfilling the Monaco programme. He has put in two machines, one of which he will handle himself, the other being in charge of an assistant still in his apprenticeship. Even Delagrangé will have to make a much more brilliant showing than ever before, his best flight up to the present being 10 1-2 miles, while the Monaco event calls for three flights of over six miles each, starting from a given point, rounding a windy promontory, and returning to the same given point. Quite an undertaking.

Henry Farman, the champion of the French school, has temporarily retired from the fray: A few days ago he sold his Voisin biplane which he had himself transformed into a triplane, and has now taken up the ungrateful task of teaching his constructor how to build an aeroplane. As the constructor is convinced that his machine ought to fly, and Farman believes that he has learned enough during his eighteen months' apprenticeship to build an aeroplane, there is a deadlock, the outcome of which is not easy to foresee.

THIS, THE CONGRESS OF A GREAT COUNTRY.

WASHINGTON, Feb. 2.—Having adopted an amendment to the army bill last Saturday, carrying \$500,000 for airships of various types, the House to-day reversed its action and by a vote of 161 to 90 defeated the amendment. The vote on Saturday was in the Committee of the Whole House and the reporting of the bill for final passage to the House itself to-day gave Mr. Tawney his opportunity for renewing his opposition to the measure. There was no debate. Mr. Tawney simply asked that the amendment at issue be voted on separately and the overwhelming vote was taken.

The only hope for the airships now is that the Senate may restore the appropriation and insist upon its amendment in conference. But that is extremely unlikely.

The only other men who have done more than scutter over the ground are Louis Bleriot and Robert Esnault-Pelterie. The former has produced two new "racers," which might fly if their wheels would stand up long enough to allow them to get into the air. Esnault-Pelterie has shown an ability to fly, but at such widely spaced intervals that he cannot be relied on for a race at a fixed date, assuming he can make good at all.

The failure of the French school makes the American triumph still more striking, for the fact cannot be denied that the only really successful machine at present in existence in France is that owned by Wilbur Wright at Pau. More Wright machines are under construction, and pupils are being trained, so that there is a possibility that the prizes which might otherwise have to remain without winners will be carried off in triumph. The race at Monaco, however, is likely to remain a blank, for Wright is somewhat opposed to taking part in anything of even a slightly sensational nature, and is further so anxious to return to the States that it is doubtful if he could race were the conditions such as suited him.

Before the end of the year there may be a score of Wright machines in commission in France, and if, as the inventor declares, it is not an acrobatic feat to handle them, some of the cash prizes that France has so lavishly created may have to be handed over. It will be a sorry day, however, if 1909, the triumphal year of the aeroplane, is only conspicuous for the success of an American production.



First Appearance of the Smaller Bleriot Monoplane, Fitted with Antoinette Motor, Which Successfully Flew January 20.

ROUGHING IT A LA MOTOR, AWAY FROM ROADS

By MONTGOMERY HALLOWELL.

ARE you one of those blasé old autoists? Have you used up every charming stretch of road within the week-end radius of your town? Have you exhausted all the thrills that the first two or three years of automobile ownership kept shooting into your system? Are you in that just-waiting mood—wondering whether the next new thing to interest you will be anything short of an airship?

Well, here's a new one that will revive every old joy of your early days of autoing.

"Roughing it"—that's the answer.

Seven of us: Major Foster, Page, Fitch, Ayres, Chalmers, Dowling, and myself were at duncheon. I don't know how it started, but before the coffee got to us we had begun to tell hunting yarns. And every man in the party began to feel that crazy longing that no city-bound, asphalt-weary, business-burdened working man ought to feel until vacation time—that longing for the woods and the wild things of nature. The Major was the inspired human being who sprang the idea.

"Getting there and getting back is what kills hunting for us chaps." Page had just said "Here it is Friday noon. From now till Monday morning we could all be out shooting except for one thing—there wouldn't be any shooting. It would be all traveling—out and back again."

The Major carefully put away what was left of his coffee and as carefully set down the cup. He didn't seem to have a thing on his mind.

"Well," he said, casually, "you know," just as if it were nothing at all, "we might do the trick with a car."

The next five minutes developed a lot of things. The Major knew a place somewhere back of Lakewood, where, by starting that night and allowing six hours for sleep, we could be on the birds early the next morning. Fitch suggested making it a camping trip and offered to supply a complete auto camping equipment from tents, air mattresses, sleeping bags and folding stove down to teaspoons with food and every other accessory, all to be so completely folded and stowed as to leave all seats free to carry us with three guests and a guide. Page came to the front with a Chalmers "Forty" and a Chalmers-Detroit "Thirty."

"We'll sleep to-night," said the Major, "at a little place I know, about a hundred and fifty miles from here. I'll 'phone for mid-night lunch and beds for nine, also for a guide and dogs. I hope those cars are all right, Page. They'll need to be. And Fitch, be sure to have a couple of axes. We may have to chop down some trees to get the cars through."

This sounded good to me—only I was glad they weren't my cars. Ten of us left Columbus Circle at 8 o'clock. At 1 o'clock we were at the little hotel, an hour beyond Lakewood. I'd like to tell about the fun of that run. But it was just a case of good roads, good cars, a beautiful night and speed.

Next morning the real fun started. With Captain Jenks, our guide in the leading car, it took those blessed cars just fifteen minutes to land us in the very heart of the bird country. Over

deep sandy roads and through the timber—the cars never turned a hair. To have walked it would have taken an hour. Who says that motoring isn't the real way for busy folks to go a hunting? We had only two days and the cars were saving every minute for us for sport.

Then came another novelty to some of us—Fitch's camping layout. To see the Major and Fitch and Dowling transform the rolls of plunder that had been strapped to the running boards into a complete camp in less than ten minutes was better than any mere fire drill I ever saw. Nothing needed to live, move and have your being out of doors was missing; and everything was made to fit into everything else so that not an inch of space was lost in packing.

I started out to tell about "roughing it" and not about the shooting itself; but right here I want to remark that, when it comes to birds, that strip of Jersey woods is good enough for me. When we got back to camp at noon not one of us had had less than a dozen shots.

And that noon-day meal. How Broadway would have stared at it and the way it disappeared.

Another lightning transformation act that would make a hit at Hammerstein's ended in getting every part and parcel of that camping outfit on the cars inside of fifteen minutes and we were off for another kind of shooting.

"I guess this is bad," said Page. "Two kinds of shooting the same day. Major, I would sooner be the father of this new idea of yours than the

winner of the Vanderbilt Cup." Our new destination was to be a certain inlet the Captain knew of on Barnegat Bay where he guaranteed us some good salt water duck shooting. By road it was a two-hour run. But the Captain knew some short cuts. We didn't save much time, but we got the sensations.

For a couple of miles we just wound around, picking our way through the woods with no road in sight. Talk about walking on eggs! That's nothing. Just try a ride in an expensive car through the trackless woods with an eight-inch fall of leaves hiding the holes and stumps. Once the "Forty," which was in the lead, got tight up against it, and, sure enough, the Major's prediction about the axes proved right. Before the car could make a get-away, the Captain had to chop down a couple of six-inch trees.

At the edge of the woods we struck a ploughed field and we began to wish the Captain had given us plans and specifications of his boasted "short cuts." However, the cars didn't seem to mind and finally we came out on a road. It was a welcome sight too—even if it was deep sand. Page knew what his cars would do to that sand, so he threw on the clutch for a little speed.

The sand didn't last long and, for a wonder, we struck a piece of ordinarily good country road. The "Thirty" was loaded almost pound for pound with the "Forty," and when Page opened up on his fourth speed I looked back to see the "Thirty" fade away. But, apparently to the surprise of even Page himself, the



Autoists in Camp in the Woods of Southern New Jersey.

smaller car kept in sight all the way. After a fairly stiff climb of about a mile, we struck the decline leading down to the beach, and, after another couple of miles through the woods, we halted at a spot that the Captain had chosen for our camp-site for the night.

The short winter afternoon was not yet nearly over and we were in plenty of time to pitch camp and spread out around the inlet before the ducks would be coming in.

For a couple of miles we were strung out along the edges and indentations of the little bay. And pretty soon the guns began to "Bang," "Bang" all over the place. The birds were coming in thick. Everybody was busy and the dogs were beside themselves.

Why—will some one tell me—why stick in the city and vainly wish for sport when it is as easy to have as this?

We had invented a way to crowd a month's vacation into forty-eight hours; but even we couldn't keep it from getting dark and soon the fun had to stop. But after all, which is the more fun—the shooting or the pipe and the talk and the loaf around the camp fire after the day's sport is done?

We found the shore too cold, and again we thanked our lucky stars for the lightning-like camp equipment and the cars. For in less than forty minutes we had picked up our traps and established ourselves again three miles back in the woods.

How good that hunter's supper was! And how unbelievable it seemed as we sat around the fire in the evening, to think that the evening before we had been in the city and that the evening following would find us back in our civilized togs, on asphalt again! How we slept that night! How we hated to crawl out of the warm sleeping bags Sunday morning—even to eat another of those wonderful out-of-door meals! And how we hated to break camp!

But we knew we could do it again—and then again. That was the compensating thought. For we had discovered and demonstrated a new idea—the tabloid outing for busy sportsmen.

The Major, Page, and Fitch were our heroes. The car and the automobile camp equipment had made it all possible.

Below is a list of the stuff Fitch furnished, barring the guns. It is every conceivable thing needed for eleven men for three full days, and all packed to leave room to spare on the cars. The total weight, including food was 203 pounds, the total cost \$135.00.

Article.	Weights.	Price.
2 automobile tents.....	18½ lbs.	\$24.70
2 dozen 12-in. steel tent pins, per doz.....	4½ lbs.	.85
2 tubular steel telescopic tent poles.....	3½ lbs.	2.50
8 Fitch sleeping bags, Style "A".....	21 lbs.	30.00
8 No. 1 air beds.....	9 lbs.	
2 three-quarter axes and sheaths.....	3½ lbs.	2.00
1 No. 8 aluminum cooking outfit for 8 people in leatheroid case, with all accessories.....	15 lbs.	32.75
1 large folding aluminum baker, with pan, bread board, canvas case and two broilers	8 lbs.	7.50
1 folding grate with canvas bag.....	3½ lbs.	2.40
4 No. 3 chairs.....	4½ lbs.	1.50
4 steel folding stools.....	2½ lbs.	.75
2 folding aluminum lanterns.....	7 ozs.	2.00
4 folding wash basins.....	7 ozs.	.85
2 folding pails.....	8 ozs.	.85
2 shot guns and 2 rifles in each car.....		discretionary
2 fishing rods, with reels, lines, hooks, flies, etc.		discretionary
2 folding tables.....	16 lbs.	2.50
1 toilet tent.....	6 lbs.	3.75
2 wall pockets.....	1½ lbs.	2.50
1 No. 2 refrigerator basket.....	9 lbs.	4.00
1 folding safety saw.....	4 ozs.	1.00
2 military night marching compasses on each car.....	7 ozs.	11.25
1 No. 1 medicine case.....	21 ozs.	3.50
1 hypodermic syringe.....	3 ozs.	1.75

All of the above articles were packed in brown waterproof bags, with handles on bottom and sides. In addition to this, foods as per food list below for eight people for one week, packed in brown waterproof nine-inch bag, price, \$125 (each).

	Lbs.		Lbs.
Flour.....	24	Rice.....	8
Corn meal.....	10	Jullienne.....	1
Beans.....	6	Soup tablets.....	¼
Erbawurst.....	½	Evaporated apples.....	2
Bouillon capsules.....	1	Evaporated apricots.....	2
Lentils.....	2	Salt.....	1
Sugar.....	9	Chocolate.....	1
R. baking powder.....	1	Tea.....	1
Coffee.....	2	Bacon.....	6
Butter.....	6	Dried potatoes.....	4
Pork.....	10	Shelled nuts.....	1
Shredded codfish.....	1	Dried eggs.....	¼
Peerless evaporated milk.....	5	Dried onions.....	¼
Total.....			100½
Pepper, spice, mustard—shaker full.			

IN A TOUR FROM SYRACUSE, N. Y., TO PAWNEE, NEB.

WHERE the northwest corner of Pennsylvania reaches out from the rest of the State to touch Lake Erie is a region that the automobile tourist dreads. It is a strip not over 40 miles across, but it is wide enough to cause trouble to the east or west-bound automobilist who attempts to cross it without a Pennsylvania license. To avoid it one would have to make a wide detour around Lake Erie and through Canada.

Just what the Pennsylvania proposition is is explained by George Johnson, of Pawnee, Neb., who, with a party in two Franklin touring cars, recently made a trip of 1,516 miles from Syracuse, N. Y., to his home. He says:

"While in Syracuse we made some inquiries about the routes, and were informed that the law in Pennsylvania was very stringent and that no foreign license would be recognized. Some said that they would not molest autos passing over the State road along the lake, but one man who had made the trip without a Pennsylvania license was held up and fined. The experience cost him \$26. We thought best to pay the State the \$3 tribute money, and we remitted to Harrisburg and had our license sent to Dunkirk, and subsequently we passed over the Pennsylvania roads without being molested."

Mr. Johnson and O. H. Schenck, of Pawnee, had just purchased the automobiles and had gone to the Franklin factory in Syracuse to drive them home. On the 1,500-mile run west they made stops at Geneva, Batavia, Buffalo, Niagara Falls and Fredonia, thence running along the route of the Lake Shore & Michigan Southern Railroad to Willoughby, and then stopping at the cities of Cleveland, Sandusky, Toledo, Swanton, Hammond and Chicago.

Although the run was made without trouble of any sort except one tire puncture, bad roads were encountered in places. "After two days in Chicago," says Mr. Johnson, "we resumed our journey, putting up at La Salle the first night out. Just out of La Salle we encountered exceptionally bad roads. Rain had recently fallen, and the further we went the heavier the roads got. At Rock River we were held up for the ferry."

At Moline the party separated, Mr. Schenck taking his car through by way of Washington, Ia., there to be rejoined by the others in Mr. Johnson's automobile, who had come by way of Rock Island and Muscatine. The reunited party continued by way of Ottumwa.

"While I have always had a pretty good opinion of Iowa and Iowa people," says Mr. Johnson, "I still have the same opinion of Iowa people; but Iowa roads, especially a strip of 100 miles out of Ottumwa, are about the worst I ever encountered. We felt somewhat relieved on reaching Nebraska City, Neb., for we knew the roads were fair from there to our journey's end."

While the jokesmiths continue to make the farmer the automobilist's foe, these tourists found him quite the contrary. "I wish to say right here that we were royally treated by the farmers along the route, and we certainly appreciated their many kindnesses," is the tribute paid by Mr. Johnson.

Austria intends setting all other nations a good example with the erection of an automobile senate at its higher courts, which is to deal with all legal questions of liability and recompense. This innovation is made by the Ministry of Justice at the instigation of the Austrian A. A.

MITCHELL THE SURVIVOR IN NEW ENGLAND TEST

HARTFORD, CONN., Jan. 28.—A 20-horsepower, four-cylinder Mitchell runabout was the sole survivor in the 156-mile endurance contest from Hartford to Pittsfield and return by way of Springfield, to-day. The time of the Mitchell was 11 hours 52 minutes, and it is estimated that at least 20 miles more than the course described were covered, so that this time is virtually for 170 miles of running. The contest was the outcome of a challenge issued by R. D. & C. O. Britton, local Maxwell agents, to all cars selling at \$1,000 or less.

There were five starters at five-minute intervals; two Mitchells, two Maxwells and one high-wheeled Holsman.

Accidents were numerous from the very start. Smith and his mechanic in No. 1 Mitchell nearly came to grief almost in sight of the start. The passage up Avon mountain was a bit tortuous and necessitated skill in driving. In the vicinity of Canton the Mitchell collided with a telegraph pole, and for a time it looked as if the car was completely out of the running. The mechanic, who had been sitting on the running board, was pounded more or less, but was game and stuck to it. The left steering pivot was badly bent, so much so that the spokes of the wheel barely cleared it. With the wheel badly dished the entire trip was made. The second Mitchell followed the wrong road, and once upon it, in a desire to make up time, halted at a tree and smashed a wheel, which put it out of the contest.

The two Maxwells encountered trouble shortly after the start. The car driven by King stripped a driving pinion and was towed back to Hartford and a new member installed. Later, however, it again came to grief and gave up the contest. The Maxwell was running in hard luck. Macdonald in the other Maxwell was giving a good account of himself when Pine Meadow was reached, and here again the hand of fate was heavy. The car stripped a driving pinion and a complete new rear axle was hurried out from Hartford and again Macdonald started out for the goal. In North Becket, however, the car skidded against a stone wall and a wheel was smashed. The crew spent the night at a farmhouse. A new wheel was shipped.

A high-wheeled Holsman seemed to have the least trouble of all the cars entered. It had a difficult time negotiating Avon mountain in the snow and ice, and as the car was equipped with but improvised chain grips going was tedious. It made a consistent showing until almost into Pittsfield, when a timer gear failed and put it completely out of business.

Smith in the first Mitchell had the lead and held it. Enthusiastic testers, eager to render what help was possible in breaking roads, were humming along nicely. One of them collided with a bridge in Sheffield, and the car was completely wrecked. Smith in the Mitchell almost lost heart as the minutes passed by, and finally when it became apparent that the wrecked tester owned the bridge he took a roundabout route.

From this point on the contest is simply a narration of indomitable nerve on the part of Smith and his mechanic (who was kept up by stimulants) and Mitchell survival. Pittsfield was duly reached after some hard going. The winning crew was dined by the Hotel Wendell, and the house doctor looked over the mechanic, badly shaken up but otherwise all right.

Jacob's Ladder still lay before the winners. Smith was prevailed upon to give up the idea of climbing the noted rise, but could not be argued with. Smith endeavored to secure the services of a guide for the trip over the "Ladder," but the day was cold and the natives did not take seriously to offers of reward. Snow shovels were secured and the car was off. The entire run up the "Ladder" was made on the low gear. The radiator was kept cool with snow when water was not to be had, and time and again it boiled out. The engine, however, worked beautifully. At the top of the "Ladder" the wheels were wound with heavy rope for the descent. It was made without special incident. The run in from Chester to Westfield was hard going,

and snowdrifts had to be eliminated. From this point on the journey, compared with what had already been encountered, was not so hard, though some of it was over the trolley tracks.

The winning Mitchell crew was given a good scare when Springfield was reached. Safe in the assurance, from inquiries along the way, that no other car had passed, the party stopped for a brief respite. The cars from Hartford had run up to escort the winner home, and as Smith got into his car along came King in the little Maxwell. "Where did you come from?" asked Smith. "Just got in," replied King. Needless to say Smith did some tall speculating as to how quick he could get away from King and reach Hartford first, but King then told the real story, and the Mitchell came over the road homeward at a leisurely



Mitchell 28-H.P. Runabout, Winner of Endurance Run.

pace, reaching Hartford at 6:52, after having run 11 hours 52 minutes. The contest was nothing if not noteworthy.

Two trophies were offered for the contest: a handsome silver loving cup from the Hartford Times to the winning car and a copper and pewter loving cup donated by the Post & Lester Company for the car making the nearest best time to eight hours. Mitchell, of course, won them both. All the cars entered except the Holsman were equipped with Hartford tires. Despite the ice and snow and extraordinary rough roads not a single case of tire trouble was reported. The Buick was withdrawn from the contest the night before the start.

A. R. MILLER TO REPRESENT SIMMS IN AMERICA.

Frederick R. Simms, co-inventor and patentee of the Simms system of magneto ignition, recently arrived in this country for the purpose of appointing an American representative of the Simms Magneto Company, Ltd., and also establishing business relations with leading American automobile makers. Mr. Simms has arranged with A. R. Miller to be the American representative in charge of a branch to be located in New York City. Mr. Simms will be remembered as a founder and the first vice-chairman of the Royal Automobile Club of Great Britain and Ireland, and again a founder and the first vice-president of the Society of Motor Manufacturers and Traders. It is not improbable that the noted Britisher will be a visitor at the Chicago show.

TRADE CONDITIONS IN MEXICO CITY.

DAYTON, O., Feb. 1.—Sigmund Krausz, representing the Dayton Motor Car Company, recently returned from Mexico, where he established a Stoddard-Dayton agency. Regarding Mexico City, Mr. Krausz found Mexican dealers in general make the mistake of handling too many makes, thus considerably lessening the chances for the success of any one car. The Stoddard-Dayton



Stoddard-Dayton on Typical Roadway of Back Street in Mexican Hill Town.

agency established in Mexico City will, however, handle exclusively the product of the Dayton Motor Car Company. One of the largest garages is to be secured, and some new features introduced in the remodeling of the quarters, especially in the housing of the customers' cars.

Federico Vedegaray, the newly appointed agent, will have associated with him some men well known among the Mexican motoring public, and an experienced man from the factory will look after the mechanical end of the business.

Mr. Krausz thinks the Mexican capital an ideal automobile town, as far as roads in the city and environs and general police regulations are concerned, and he is convinced that American cars, in spite of the existing prejudice in favor of the French, Italian and German machines, are steadily gaining ground there. He made many trips around Mexico City with interested autoists and the way his Models 9-F and 9-A performed over the hardest roads created a favorable impression.

AUTO EVERY 12 SECONDS.

NEW YORK CITY, Feb. 1.—Claims have long been made that New York is one of the world's greatest automobile centers, and to substantiate this a test was made last Saturday afternoon at the corner of Fifty-seventh street and Broadway. Beginning at 3 o'clock, note was made of every vehicle that passed the corner in question in both directions for the ensuing half hour. In that time, 353 cars are said to have passed up and down "Automobile Row," or an average of an auto for every 12 seconds, while but 75 horse-drawn vehicles passed there during the same period. Conditions were unfavorable for traffic of any kind.

MR. AND MRS. HOVER ARE UNDAUNTED.

NEW YORK, Feb. 3.—Unlike many of the other passengers on the ill-fated *Republic*, which went down off Nantucket before having made more than a few hundred miles on her trip across the Atlantic, Mr. and Mrs. Hover, of Spokane, Wash., who were starting the first European leg of their round-the-world trip in a Maxwell, are not discouraged by this unpleasant occurrence such a short distance from the start, and are making another try at it to-day on the *Adriatic*. The latter vessel is another White Star liner, but is bound for Southampton, from which point the Hovers will go directly to the Riviera, stopping at Nice. This will mean the postponement of the Algerian part of the trip, the change having been made owing to Mrs. Hover's ill-health and the lateness of the season. Mr. Hover's plans were more or less dependent upon his wife's recovery; but he will probably make a start on the Continent first, instead of going to Africa.

Current report had it that the Maxwell touring car in which the Hovers crossed the American continent from Spokane, Wash., to New York, and in which they intended to continue the remainder of their trip round the world, had gone down with the *Republic*. A little investigation proved this to be erroneous, Colonel Pardee, of the local Maxwell-Briscoe branch, being under the

impression that the car had not been shipped at all as yet, and that it was still in New York. This was not in exact accord with the facts of the case either, as events proved, for the occasion on which Mr. and Mrs. Hover were photographed in the machine, as shown by the accompanying illustration, was the last in which it appeared in this country. That was a day or two preceding their departure on the *Republic*, and the Maxwell in its crate went out on an Italian freighter, bound for the Mediterranean, less than 24 hours before the unfortunate White Star liner set sail, so that it is now awaiting their arrival at the custom house of some Italian port, instead of being in the hold of a steamer 200 feet or more under water, as has been generally supposed. The losses suffered were confined to their personal effects.



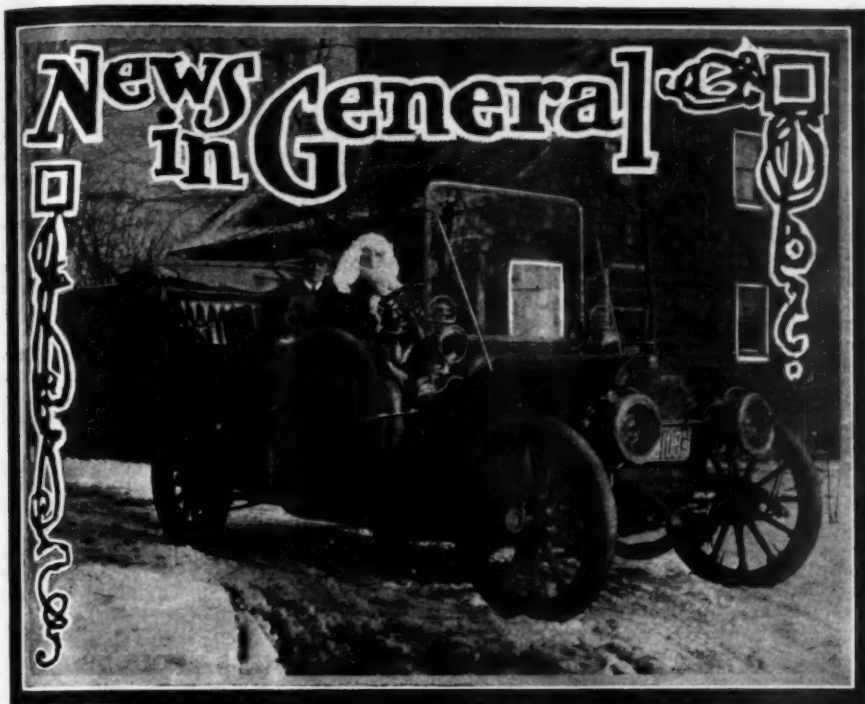
Mr. and Mrs. H. A. Hover in Their Maxwell Prior to Sailing on the "Republic."

M. R. Summit
Eve es-
mobile
the labo-
pletely,
Nick.

Proo-

In this
new or-
nection
idea o
interest
the late
so to s
at the
Garden
and the
Then i
the nu
the va
carpets
at oth
This v
cupied
the c
places,
of Lo
had be
passed
so mu
made
that i
the ca
three
parted

New
mate.
a tru
never
lutely
Look
of the
of a
the y
tion
contra
manu
S. F
factur
produ
this
Firest
mater



How One Santa Claus Adopted Up-to-Date Methods.

M. R. Hutchinson, inventor among other things of the Klaxon warning signal, lives in Summit, N. J. The electrical engineer of his organization, Jonathan Haralson, on Christmas Eve essayed successfully the role of a modern Santa Claus, utilizing Mr. Hutchinson's automobile in the distribution of a tonneau full of scientific toys which might be expected from the laboratory of an inventor. While the innovation shattered the reindeer story quite completely, the youngsters seemed to be as well satisfied with the up-to-date methods of "Old Nick." He covered his rounds much more quickly than with the old reindeer-drawn vehicle.

Proof of Interest in Pierce Arrows.—

In this day of new and novel ideas a brand new one has been sprung recently in connection with the automobile shows. The idea of finding the indications of public interest in the cars took many forms, but the latest consists of looking for footprints, so to speak. As soon as 11 o'clock struck at the close of the recent Madison Square Garden show exhibitors began to move and the heavy burlap carpeting was bared. Then it was possible to gain some idea of the numbers that had visited the spaces of the various manufacturers. Some of the carpets showed scarcely any wear, while at others the wear was very noticeable. This was particularly true at the space occupied by the Pierce Arrow cars, where the carpet was worn through at seven places, four of them being about the door of Louis XVI suburban car. Every seam had been ripped by the thousands who had passed about the exhibit. This fact caused so much comment that an examination was made of other exhibits, and it was found that in no other space in the Garden had the carpet been worn through, although in three others some of the seams had been parted.

New and Larger Production Estimate.—It is a well-known fact, almost a truism, that motor car manufacturers never buy any more tires than are absolutely necessary for their season's output. Looked at in this light, the compiled figures of the tire contracts already placed allow of a newer, yet conservative, estimate of the year's production. Basing his prediction upon the number of tires actually contracted for by the various automobile manufacturers throughout the country, F. S. Firestone, the well-known tire manufacturer, estimates the 1909 automobile production at 72,500 cars. "The effect of this enormous production," added Mr. Firestone, "means a distribution for wages, materials and new tire equipment alone of

more than \$125,000,000. This is an increase of about 50 per cent. over 1908, and will go a long way toward restoring normal conditions to general business."

Six-Cylinder Motor Still Gaining.—

Those autoists and manufacturers who predicted the speedy downfall of the "six" are gaining small comfort from the present situation. Not only is the "six" still gaining in our own country, but abroad as well. That France is becoming enthusiastic over the six-cylinder car is shown by the increasing number of "sixes" exhibited at the Paris Salon. In 1905 only three "sixes" were displayed. In 1906 the number grew to 23, in 1907 to 57, and in 1908 (last December) to 96. Practically every well-known maker in France is producing one or more six-cylinder models. Similarly at the Madison Square Garden show no less than 25 "sixes" were shown, which is 18 per cent. of the total. If the commercial cars were eliminated it would then appear that about one-fourth of the whole number are "sixes."

Old-timer Still at It.—As exemplifying the fact that some of the old-timers were built in a very sturdy fashion and built to last despite the then lack of fine materials, may be noted one Australian user of a car of the "vintage" of 1900. T. P. Williamson, of Yass, New South Wales, has converted into a delivery wagon one of the single-cylinder Wintons that were shipped to Australia in 1900. The nine-year-old motor is declared to be better than ever, Mr. Williamson stating that he gets 15-horsepower, although the original rating was 10-horsepower. This is a noteworthy record, for few cars built nine years ago are even in evidence, to say nothing of running.

Stands High in Home Town.—It is an old and very trite saying that a prophet may lack honor in his own country, but of automobile manufacturers a similar state-

ment would not hold water. Thus the majority of manufacturers lead in their home town or share this lead with another home-maker. Statistics lately compiled in Ohio by the State automobile department show that Cleveland, the home of the Winton car, has more autoists who drive Wintons than any other single make. Cleveland-owned Wintons range from the single-cylinder of 1899 to the "six" of 1909.

A. L. A. M. Hand-Book.—The sixth annual edition of the hand-book is now out, and, besides showing more cars than its predecessors, illustrates and describes the principal models for the coming year by the association members. The press work is excellent; the book, of the same size as heretofore (folio 8vo), being contained in a smart cover. An innovation is a page giving in tabular form the horsepower ratings of the various sized motors, according to the A. L. A. M. formula. The hand-book is sent, as usual, from the A. L. A. M., 7 East Forty-second street, New York City, on receipt of six cents to defray postage.

Big Factory Increase Necessary.—Owing to the great and growing demand for their cars, the Overland Automobile Company has been obliged to rent another factory, which will make the fourth. The latest is a large frame carriage building, which is at present standing idle. It was originally intended to build 1,500 Overland cars for 1909, but with the increased accommodation contracts have already been placed for parts sufficient to build 3,000, with an option on from 500 to 1,000 more. The output for Overland cars alone is already 20 per day, and by the first of February will be up to 25.

Compete with Street Cars.—Out in Pittsburg recently a company that got a "raw" deal from the railway company will start a competing line of automobile buses. It seems the Pittsburgh Railways Company refused to accept the Duquesne Incline Plane Company's transfers, so the latter will compete. April 1 an auto service will be established, running upon a four-minute headway during the rush hours, and but eight minutes apart the rest of the day. Twenty-two passenger buses of a well-known make will be used.

Inventor Will Revolutionize the Industry.—The following news item has been received: The triple-action lightweight motor is no longer a dream, but a reality. Edward van Baerle, of New York City, is now working on a model which he claims, when finished, will drive an automobile without the present transmission or clutch. It will, he thinks, make an ideal aeroplane motor, but probably would not be satisfactory in a motor boat.

Monarch Plugs Have New Factory.—The E. M. Benford Mfg. Co., maker of Monarch spark plugs, has completed its new factory building at Mount Vernon, N. Y., a handsome two-story brick structure, 30 by 125 feet, which is equipped with the most improved machinery for the manufacture of the company's products. Seventy-five men are employed under the direction of David Benford, assisted by M. Foltz as electrical engineer.

Reo Doing a Tremendous Business.—The daily sales of the Reo sales agents amount to nearly fifty a day now, with the prospect of an increase in this. A recent shipment from the factory to a Western agent was probably the largest single shipment ever made from Lansing, which is saying a good deal. This shipment of 18 carloads, containing 108 Reos, went to Wichita, Kansas.

Horses Get Another Setback.—Every day one hears of another case of the horse being supplanted. The latest is concerned

with the "bang tails," for the Crescent City Jockey Club, of New Orleans, after 25 years' successful operation, has decided to liquidate the club's affairs and convert the old race track in an automobile speedway. How are the mighty fallen!

Dolson Plant Now the Home of Motor Trucks.—The former Dolson Automobile Company's factory at Charlotte, Mich., has been sold to a Battle Creek firm, headed by a man named Messmer, and will be reopened at once. The vehicles to be built include a full line of commercial vehicles, notably delivery wagons and beam trucks.

Nadall Rim Wins Again.—In the recent demountable rim contest held in Minneapolis, Minn., by the Minneapolis Automobile Club, the Nadall demountable rim cleaned up the field once more. This winner of the first prize did the complete change in just 30 seconds, followed by Diamond and Fish in that order.

IN AND ABOUT THE AGENCIES.

American Distributing Company, Cleveland, O.—This concern announces that it now handles the output of the Hayes Wheel Company, Jackson, Mich. Formerly it handled the product of the Imperial Wheel Company, of which Mr. Hayes was vice-president and general manager for several years. The American Company also announces that it has no further connection with the product of the "Long Arm" System Company, but anticipates announcing a new connection very shortly.

Brush in Foreign Countries.—The Brush Runabout Company, Detroit, Mich., has under way negotiations with representatives in Chili, Peru, Ecuador, Venezuela, Columbia, Spain, Cuba, Porto Rico, Central America and Mexico. When the prospective arrangements are completed the Brush will have a representative in every country in the world of any importance to the automobile industry with the exception of Russia.

Oakland, Chicago.—The Centaur Motor Company of Buffalo, N. Y., general sales agents for the Oakland Motor Car Company of Pontiac, Mich., has completed arrangements for an agency in Chicago at the old Rainier quarters, 1725 Michigan avenue. Arthur M. Robbins, formerly with the Rainier branch in Chicago, will have charge.

Monarch, Pittsburg.—Among the agencies in the Smoky City is the Empire Automobile Company, who will act as a distributor for the Monarch car in the State of Pennsylvania. Branches have already been established at Uniontown, Tionesta, Oil City, Butler, Scranton and other towns.

New Lozier Headquarters.—The Lozier Motor Company is now located at 1751 Broadway, in the old quarters formerly occupied by the Hol-Tan and Rainier companies. The Lozier company occupies the entire building, necessitated by the growth of its selling operations.

American Simplex, New York City.—W. G. Isbell, Michigan agent for the American Simplex, recently closed a deal for the New York City agency of that car, and has sold his Detroit garage to Ashley Pond, Jr., agent in that city for the Stanley steamer.

Overland, Dallas, Texas.—A distributing branch for the Overland has been opened in Dallas, operated under the name of the Overland Automobile Sales Company, in charge of Mr. Funk, of the Oklahoma Motor Car Company, Oklahoma City.

Renault, Philippine Islands.—Paul Lacroix, general manager of the Renault Frères Selling Branch in America reports that a contract has been closed with Levy Brothers, of Manila, as representatives of Renault cars in the Philippine Islands.

Inter-State, Boston.—The Inter-State car will be hadled in Boston by the S. M. Supplies Company, which has recently organized an automobile department, with V. A. Charles as manager, and opened sales rooms at 22-24 Lincoln street.

Overland, Chicago.—A direct factory branch of the Overland Automobile Company is being operated at 1413 Michigan avenue, under the management of Charley Price.

PERSONAL TRADE MENTION.

Sigmund Krausz, who has been connected with the foreign department of the Dayton Motor Car Company, Dayton, O., has resigned after completing arrangements for Stoddard-Dayton agencies in South America, Cuba and Mexico. On the occasion of his departure from Dayton, O., Mr. Krausz was tendered a farewell banquet, given by the Dayton company, C. G. Stoddard presiding at the function. Mr. Krausz is now looking for another foreign proposition, and can be addressed at 5607 Indiana avenue, Chicago, Ill.

Edward Cannon Bald was recently married in Pittsburg, Pa., to Mrs. Joan Seeley Gilbert, and the announcement reads that after February 15 his home address will be 5710 Baum street, in that city. Mr. Bald is remembered as the old bicycle champion, who held his kingship for several years. The news of his marriage will be read with considerable interest by his numerous friends throughout the entire country. He has automobile trade connections in Pittsburg.

John C. Wetmore, automobile editor of the New York *Evening Mail*, has gone South on a Winter vacation. John R. Eustis, a well-known automobile writer, and formerly in charge of the automobile department of the New York *Globe*, is this week looking after Mr. Wetmore's *Evening Mail* duties.

C. J. Connolly, for many years a well-known bicycle agent in Rochester, N. Y., and later on the traveling force of the Motor Car Equipment Company, has accepted a position with the Mutual Auto Accessories Company, of New York City, and will cover his old territory with a new line of automobile accessories.

"Wally Owen," one of the oldest and best known automobile men, has joined the staff of Fickling & Company, 304 and 306 West Forty-ninth street, and will hereafter take charge of the company's second-hand department, to be opened as a clearing house in New York City for the various automobile firms.

A. B. Cordner, senior member of the well-known New York City firm of Cordner, Flinn & Toppin, agents for the Acme, sailed for London recently. His purpose is to secure a much larger building there and move the London branch house into it, the business having outgrown the present quarters in that city.

P. C. Chrysler, formerly with the Rainier Motor Car Company, has been appointed manager of city sales for the American Locomotive Company at 1886 Broadway, New York City.

W. S. Gilbreath, formerly of the Pope-Waverley Company, will be a notable addition to the sales department of the Overland Automobile Company.

RECENT BUSINESS CHANGES.

McDowell Bros., Auburn, Ind.—Muncie gains one more manufacturing industry by the removal of McDowell Bros., who have been engaged in the manufacture of motor buggies here. A stock company has been organized and the business will be conducted on a much larger scale.

Cordner & Flinn, New York City.—The metropolitan agents for Acme cars announce that John L. Toppin has been admitted to the firm, whose cognomen will from now on be changed to Cordner, Flinn & Toppin.

Mitchell Automobile Company, Newark, N. J.—This concern, located at 282 Halsey street, has changed its name to the Crawford Automobile Company, and will handle the Crawford.

Mitchell, Cleveland.—The Cleveland agents for the Mitchell, Lucas & Christenson have removed to new quarters at 2139 East Eighteenth street.

Elmore, Cleveland.—The Elmore Motor Car Company will soon remove to its new home at Euclid avenue and East Ninth street.

BUSINESS TROUBLES.

Auto Motor Car Company, Cincinnati.—James H. Ratliff, vice-president, has asked for a receiver on the ground that the majority of stockholders have "fraudulently connived" to turn the assets over to the Sid Black Automobile Company by a "wash" sale. As a result, this \$50,000 concern, he charges, is insolvent.

FRANKLIN ANNUAL MEETING.

SYRACUSE, N. Y., Feb. 1.—The annual meeting of the stockholders of the H. H. Franklin Manufacturing Company was held Thursday last at the company's factory. H. H. Franklin was re-elected president; Giles H. Stilwell, vice-president, and F. A. Barton, secretary and treasurer. The following men were re-elected directors: H. H. Franklin, E. H. Dann, John Wilkinson, Giles H. Stilwell, A. T. Brown, W. C. Lipe and F. A. Barton. J. G. Barker and H. W. Chapin were named as inspectors of election for the next annual meeting.

For the first time the stockholders used the new directors' room in the new office building. The company has entirely completed its new building and every inch of the total floor space of 20,000 square feet is in use. The main office entrance is now in West Marcellus street, a few feet west of Geddes. The new office quarters are ornate, and there is now plenty of room, light, etc., for everybody, including officers, directors and the small army of clerks and stenographers required to care for the concern's big business.

The report of the president, given at this meeting, was filled with interesting data. The year of 1902 was the first twelve-month for the manufacture by the company of motor cars, and in that time thirteen cars were turned out. Now there have been built in one year in excess of 6,000. The employees of the company number 1,600, representing thirty-three trades. With the extensions of the past year, and not counting warehouse space leased for storage purposes, though including the newly leased plant of the Syracuse Bicycle Company, the concern now commands 250,000 square feet of floor space.

During the present trade year sale of cars has been made for shipment to Australia, Russia, Canada, Mexico, Cuba, Porto Rico and Hawaii.